

2

R E P O R T R E S U M E S

ED 002 753

24

MOTIVATIONAL AND PERSONALITY FACTORS IN THE SELECTION OF
ELEMENTARY AND SECONDARY SCHOOL TEACHING AS A CAREER.

BY- KUHLEN, RAYMOND G. DIPBOYE, WILBERT J.

SYRACUSE UNIV., N.Y., RESEARCH INSTITUTE

REPORT NUMBER CRP-D47

PUB DATE

59

CONTRACT OEC-6404

EDRS PRICE MF-\$0.27 HC-\$5.52 138P.

DESCRIPTORS- *TEACHING, *CAREER PLANNING, *PERSONALITY
ASSESSMENT, *ELEMENTARY SCHOOL TEACHERS, *PSYCHOLOGICAL
NEEDS, *CAREER CHOICE, SECONDARY SCHOOLS, CALIFORNIA F SCALE,
THE GUILFORD ZIMMERMAN TEMPERAMENT SCALE, SYRACUSE, NEW YORK,
THE EDWARDS PERSONAL PREFERENCE SCHEDULE

THE SUBJECT OF CONSIDERATION WAS TO STUDY THE REASONS
WHY YOUNG PEOPLE CHOOSE THE TEACHING PROFESSION IN CONTRAST
TO OTHER VOCATIONS INVOLVING COMPARABLE TRAINING.
APPROXIMATELY 1,200 UNDERGRADUATE STUDENTS AT SYRACUSE
UNIVERSITY PROVIDED INFORMATION FOR THIS PROJECT. COMPARISONS
WERE MADE OF--(1) WOMEN STUDENTS SELECTING ELEMENTARY AND
SECONDARY TEACHING AND WOMEN MAKING OTHER VOCATIONAL CHOICES,
(2) MEN STUDENTS SELECTING SECONDARY TEACHING AND MEN MAKING
OTHER CHOICES, AND (3) MEN AND WOMEN SELECTING TEACHING. DATA
WERE GATHERED THROUGH PERSONALITY MEASURES, VOCATIONAL
INTEREST INVENTORIES, TESTS DESIGNED TO MEASURE PSYCHOLOGICAL
NEEDS, QUESTIONNAIRES DEALING WITH EXPECTATION AND CONCEPTS
OF TEACHING AS A PROFESSION, AND INTERVIEWS. FURTHER RESEARCH
ON HOW TEACHERS AND TEACHING ARE SEEN BY VARIOUS OTHER GROUPS
IN THE POPULATION WOULD BE HELPFUL. (AH)

ED002753

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the
person or organization originating it. Points of view or opinions
stated do not necessarily represent official Office of Education
position or policy.

MOTIVATIONAL AND PERSONALITY FACTORS IN
THE SELECTION OF ELEMENTARY AND SECONDARY
SCHOOL TEACHING AS A CAREER

by

Raymond G. Kuhlén
and Wilbert J. Dipboye

Syracuse University

The research reported herein was per-
formed pursuant to a contract with the
United States Office of Education,
Department of Health Education and
Welfare. O. E. Contract No. 6404

Syracuse University Institute of Research
Syracuse 10, New York
1959

TABLE OF CONTENTS

	Page
1 The Purpose of the Study	1
2 Subjects and Procedures	5
3 The Chronology and Course of Vocational Choice . . .	22
4 Achievement Motivation as Related to Vocational Choice	57
5 Nurturance Needs and Vocational Choice	67
6 Autonomy Needs and Vocational Choice	74
7 Other Needs, Interests, and Values as Related to Vocational Choice	78
8 Personality Factors in Vocational Choice	90
9 Perception of the Need Satisfaction Potential of Various Occupations	96
10 Summary.	111

Acknowledgments

This study was conducted under a Cooperative Research Contract with the U. S. Office of Education. Acknowledgment is due the U.S. Office of Education for this support and to many individuals whose cooperation made the study possible.

Deans Virgil M. Rogers of the School of Education, Eric H. Faigle of the College of Liberal Arts, Ralph A. Galbraith of the College of Engineering, Morris E. Hurley of the College of Business Administration, and Gladys Van Benschoten of the School of Nursing, all of Syracuse University, provided invaluable help in securing the cooperation of subjects from the several colleges. Their wholehearted support of the project was indispensable to its prosecution.

Dr. Bruce Gilchrist, Director of the Syracuse University Computing Center, gave freely of his time and knowledge, thus making possible the use of the IBM 650 Computer in the analysis of the data.

The graduate research assistants who were involved in the actual collection, coding, and analysis of data performed their tasks with enthusiasm and in a responsible manner. They include Ann Hellerstein, Mary Huzzard, Lewis Koenigsberg, Joseph Levin, Burt Marcus, Jean McKeithen, Oliver Nikoloff, Sam Osipow, and Donald VanWagenen. Virginia Conine served as administrative assistant and secretary.

LIST OF TABLES

Number		Page
1	Comparison of the several college groups with respect to age and class status	13
2	Comparison of the several college groups with respect to academic aptitude and achievement . .	13
3	Percentage of occupational choice groups reporting various types of religious background and present affiliation.	16
4	Percentage distribution of various occupational choice and college groups according to occupational classification of father	17
5	Percentage distribution of the various occupational and college groups according to occupational level of father	19
6	Age of beginning (a) first vocational interest, and (b) current vocational interest	24
7	Age of (a) "first notion" of current choice, (b) when seriously considered, and (c) when "really sure"	25
8	Mean number of vocational interests other than the current held during the course of development	28
9	Percentage of subjects whose responses regarding reasons for beginning initial and current interests were classifiable in various categories	32
10	Percentage of subjects who gave various reasons for not going into father's or mother's occupation	36
11	Percentage of subjects (a) who reported mother or father as exerting greater influence on choice and (b) whose parents indicated approval or disapproval of choice	38
12	Work history of various groups as shown by (a) mean age of first work experience, (b) mean number of different jobs, (c) number of years during which part-time work occurred, and (d) number of summers devoted to full time work. . .	40

13	Percentage of various groups whose histories involved various types of paid-work experience.	.40
14	Percentage of subjects who gave selected reasons for discontinuing interest immediately preceding current interest.	.45
15	Percentage of subjects giving various answers to questions: "What (occupation) would you select if you could so absolutely anything you wanted to do, with no restriction? Why didn't you go into this?"..	.46
16	Percentage of various groups providing various types of evidence suggesting doubt regarding present choice.	.46
17	Mean rating of degree of interest in advancement and mean age at which goal is expected to be achieved.	.48
18	Percentage of various groups reporting various types of future plans.	.50
19	Percentage of several groups having various perceptions of future opportunity and expectation of success in reaching own goals	.53
20	Percentage of groups who gave selected answers to questions regarding time left for reaching a definite vocational choice	.55
21	Means and variances of scores on the achievement need scale of the Edwards Personal Preference Schedule for the various occupational choice groups	.60
22	Results of <i>t</i> tests (expressed in per cent level of confidence) of differences between means reported in the preceding table	.61
23	Contrasts of the various college groups of men and women with respect to various measures of achievement need: means and variances	.63
24	Percentage of various groups of subjects who reported types of goals indicating varying degrees of interest in advancement to be reached (a) by age 30, and (b) by age 45.	.66
25	Means and variances of scores on the nurturance scale of the Edwards Personal Preference Schedule for the various occupational choice and college groups	.68
26	Results of <i>t</i> tests (expressed in per cent level of confidence) of differences between means of women's groups reported in the preceding table	.69

27	Means and variances of the several college groups on (a) ranking in importance given the job characteristic of "helping others," and (b) the social service group key of the Strong Vocational Interest Blank	73
28	Means and variances of the several occupational choice and college groups on the Edwards measure of autonomy need	75
29	Results of t tests (expressed in per cent level of confidence) of differences between means of women's groups reported in the preceding table	76
30	Summary in terms of levels of confidence at which the null hypothesis may be rejected of the degree to which various scales of the Edwards Personal Preference Schedule differentiated the groups studied.	79
31	Means and variances of the scores of the several occupational choice and college groups on the Edwards' measures of dominance, change, and endurance needs	81
32	Means and variances of scores on the affiliation and intraception scales of the Edwards Personal Preference Schedule for the various occupational choice and college groups	84
33	Means and variances of the scores on the several group scales of the Strong Vocational Interest Blank (Men by College)	86
34	Means and variances of the scores of the several college groups of women on selected scales of the Strong Vocational Interest Blank	86
35	Mean rankings assigned various occupational "values" by the several college groups	88
36	Summary of the results of analysis of variance with respect to the various personality measures	91
37	Means and variances of scores on the measure of manifest anxiety for the several occupational choice and college groups	93
38	Means and variances of scores of the several college groups on selected subtests of the Guilford-Zimmerman Temperament Scale	95

39	Comparison of the occupational groups with respect to their perceptions of the need satisfaction potential of their occupational choices for achievement, nurturance, and autonomy needs	100
40	Comparison of the occupational groups (means and variances) with respect to their perceptions of the need satisfaction potential of their occupational choices for change, endurance, and intellectual needs	102
41	Comparison of occupational groups (means and variances) with respect to their perceptions of the need satisfaction potential of their occupational choice for the needs of dominance, exhibition and order	103
42	Comparison of the occupational groups (means and variances) with respect to their perceptions of the need satisfaction potential of their occupational choices for the needs of intraception, affiliation, and deference.	104
43	Comparison of the occupational groups (means and variances) in perceptions of the need satisfaction potential of their occupational choice for the needs of succorance, aggression, and abasement. . . .	105
44	Comparison of the occupational groups (means and variances) with respect to their perceptions of the need satisfaction potential of their occupational choices for the needs of economic status, security, and social status	106
45	Comparison of prospective teachers with experienced teachers with respect to their perception of the need satisfaction potential of public school teaching	109

I. THE PURPOSE OF THE STUDY

There has been a growing awareness on the part of psychologists and counselors that the choice of an occupation is not simply an intellectualistic decision in which job requirements are matched with personal capacities and interests, but rather that the "selection" of an occupation is a long-term developmental process reflecting the self-concept, need structure, and personality characteristics of the particular individual. Occupations presumably offer varying potentialities for the satisfaction of certain basic motivations and differ in the degree to which they are compatible with various types of personalities. "Choice" may involve a process of role- and reality-testing over a period of years and in a variety of contexts. The individual need not be, and probably often is not, aware of either his motivations or his changing perceptions of occupations as they relate to his motivations, but he will likely tend to be attracted to those occupations which are perceived as offering the potential for satisfying his particular set of needs. Such a point of view in theory and research relating to vocational choice is well illustrated in summary statements, such as those by Darley and Hagenah (1955), Roe (1956), and Super (1957), and reflects the broader interest in personality and motivation as explanatory variables that has characterized psychology generally over the past decade and a half.

The present study represents an effort to ascertain differences in needs and personality among young men and women who have selected different occupations. Although the focus of attention was upon the selection of elementary and secondary public school teaching as careers, the importance of studying individuals selecting such occupations in contrast to those selecting other fields is apparent. A part of the motivation for undertaking the study grew out of the assumption that efforts to attract people into occupations, such as teaching, where critical personnel shortages exist, will be successful to the degree that such efforts reflect an awareness of the motivational and personality factors that predispose to the selection of those occupations.

Although primarily a descriptive study designed to ascertain ways in which prospective teachers differed from prospective members of certain other occupational groups, a number of rather specific hypotheses were entertained at the outset, hypotheses based on preliminary judgments by the investigators as to the kinds of needs that might be satisfied in various occupations or the personality characteristics compatible with various types of work. The hypotheses considered were of four types: (1) hypotheses related to the degree of saliency of career in the lives of the subjects, (2) hypotheses related to needs, (3) hypotheses related to perception of occupation, and (4) hypotheses related to personality.

It was hypothesized first of all, that people selecting different occupations vary in the degree to which they are career-motivated, in the degree to which occupation is important to them and is viewed as a major source of satisfaction. Among women, for example, the occupational role tends to be secondary to the marital role. It was thought that people for whom career has little saliency will eventually, almost by default, become oriented toward occupations which have relatively little in the way of required preparation for entrance and hence are available to such people when a decision is, in a sense, forced upon them. Teaching may be viewed as such an occupation, at least for those who are already committed to a college education but not to a prospective occupation. Accordingly, it was predicted that for women who select teaching, career will have less saliency (though more so for prospective secondary teachers than elementary) than would be true of women selecting non-standard occupations or of men selecting careers other than teaching. It was anticipated that variations in saliency of career would be especially evident in facts regarding the chronology of vocational choice, the age at which current choice is made and the degree to which careers are projected into the future. Those individuals for whom career has little salience will tend to make their current choices at a later age than others and will tend to view themselves as achieving their eventual goals at an earlier age than more career-oriented individuals. It is, however, quite probable that differences among women may be minimized or even reversed from what might be predicted for men, because career probably does not for them typically become salient till an age when the likelihood of marriage is reduced. In addition, strong cultural influences tend to funnel women into conventional women's occupations, a fact which might alter markedly the chronological pattern of choice.

Apriori considerations regarding the types of satisfactions and frustrations that likely characterize the public school teaching profession and other occupations led to a second group of hypotheses relating to needs: (a) People selecting public school teaching, especially elementary school teaching, as a career will have high murturance needs. This will also be true of a field such as nursing, but women going into "non-standard women's occupations" will have relatively low murturance needs, as will men going into areas such as engineering and business. (b) People selecting public school teaching will have relatively low achievement needs, though prospective secondary school teachers will have higher achievement needs than those going into elementary education. Prospective nurses will also have relatively low achievement needs, but women selecting non-standard women's occupations will have higher achievement needs. Men selecting engineering, business areas, and law will have relatively high achievement needs. (c) People selecting nursing (especially), but also public school teaching will have relatively low autonomy needs, but secondary school teachers will have higher autonomy needs than elementary school teachers. Women selecting non-standard women's occupations will have relatively high autonomy needs, as will men selecting engineering, business and law.

Since the basic hypothesis of the study is that people will select those occupations which are perceived as offering high potential for the satisfaction of their basic needs, hypotheses relating to perception of occupations (the third group of hypotheses) parallel those set forth above regarding needs.

(a) Prospective teachers and nurses will perceive the occupations of their choice as offering high potential for satisfying nurturance needs. Women selecting non-standard occupations and men selecting areas such as engineering and business will perceive these occupations as offering less opportunity for satisfaction of nurturance needs. (b) People selecting education as an occupation will perceive this field as potentially less satisfying to individuals with high achievement needs (elementary school teachers less so than secondary), whereas women selecting non-standard occupations and prospective engineers, business men, and lawyers will perceive these fields as more rewarding to people with high achievement needs. (c) Prospective teachers (especially elementary teachers) and nurses will perceive their occupations as frustrating to people with high autonomy needs. In contrast, prospective engineers, business men, lawyers, and women selecting non-standard women's occupations will perceive their fields as having greater potential for satisfying people with high autonomy needs.

Finally, certain hypotheses related to personality. Personality may be viewed as a pattern of adjustive predispositions or habits through which gratification of needs is achieved. Although a variety of data relating to personality were collected, the main hypothesis in this area related to the trait of "rigidity" or "intolerance of ambiguity," a characteristic that has been the subject of extensive theoretical and research interest in recent years. It was hypothesized that individuals with rigid personalities would tend to select occupations which are highly structured, where decisions are clear-cut, answers "right" or "wrong," data and operations to be dealt with tangible. It was predicted that prospective engineers would be especially rigid, as would nurses. Prospective elementary teachers and those selecting English and the social studies would be less rigid than those selecting mathematics and the sciences. Those predictions grew out of a priori judgment regarding the degree to which these various fields were highly structured or involved ambiguities.

Other variables are obviously of importance in eventual vocational choice and subsequent career achievement and satisfaction. The ability of the individual and his economic resources, for example, play significant roles in the degree to which a person is able to actually enter an occupation that he might consciously desire. Inadequate ability or insufficient capital are among the reality variables that force compromise in the development of vocational choices. While public school teaching tends to rank high in status among all occupations, it tends to rank low among occupations requiring advanced collegiate preparation, i.e., low among the professions. Accordingly, it might be predicted that individuals who select a readily available occupation but one of

lesser status, such as teaching, may do so because of forced compromises with reality. While some data were obtained bearing on such a hypothesis, it was not a basic hypothesis in the study. Nor were hypotheses advanced regarding the relation to occupational choice of background variables, such as economic status of parents. While certain data regarding background were obtained and will be presented to describe the sample, it was assumed that such factors are important in choice primarily as they influence the development of needs, personality, and perception of occupation or pose blocks to the achievement of occupational ends determined by these variables.

II. SUBJECTS AND PROCEDURES

The subjects in this investigation were juniors and seniors at Syracuse University drawn from five schools or colleges: School of Education, School of Nursing, College of Liberal Arts, College of Business Administration, and the College of Engineering. Initially it was planned to administer a variety of tests requiring about six hours, divided into three weekly sessions of two hours each, and to interview each subject for approximately one hour. A letter was mailed to each junior and senior student in various colleges over the signature of the appropriate dean, explaining briefly the purpose of the study and asking cooperation. This procedure met with varying success from college to college. Although the first invitation addressed to students in the School of Education elicited excellent cooperation, response was not so extensive in other colleges and attrition from first to third testing period was pronounced. Accordingly, a "basic" battery of tests most directly related to the hypotheses of the study and administerable in one two-hour session was determined and further requests for cooperation were made by instructors in individual classes and through telephone calls to individual students.

Methods of Collecting Data

The general hypotheses of the study set forth above and the need to describe the general backgrounds and characteristics of the sample required tests and other devices related to a number of variables. The motivational and personality areas sampled and the measures utilized are described briefly below:

Measures of Needs and Motivation. Measures related to the motivational structure of the subjects selecting various occupations were, of course, basic to the study. The measures utilized were:

(a) The Edwards Personal Preference Schedule (Edwards, 1957). This forced-choice instrument measures some fifteen needs including needs for achievement, nurturance, and autonomy. The test also yields a consistency score which may be utilized to segregate those individuals who showed low consistency in responding to identical pairs of items. In the present study, all scores were included in the analyses regardless of the consistency score.

(b) The Strong Vocational Interest Blank. Without providing scores related to needs labelled in the conventional way, the Strong scores may be interpreted as measuring a composite of motivations (i.e., liking for various activities) appropriate to a particular occupation. In addition, the OL (Occupational Level) key is presumed by some to be a measure of drive. Evidence regarding this scale has been summarized in detail by its author (Strong, 1943, 1955).

(c) The McClelland Measure of Achievement Motivation.

This test differs from the previous scales in that the score is derived from projective material, stories written about four pictures projected before a group. The pictures utilized, the procedures of administration, and the method of scoring were those described by McClelland (1953). Although this test may be viewed as tapping unconscious achievement needs, its reliability is low. However, McClelland and his students have reported scores to relate positively to other types of behavior reflecting achievement motivation. The test may be administered under various conditions including those of "need arousal." In the present study, the mere fact that it was being utilized in a study which had been described to the subjects as relating to vocational choice may have created a condition of need arousal; otherwise no effort was made to create such a condition.

(d) Interview and General Questionnaire. A "personal data" form was prepared which included a number of questions dealing with career orientation, drive, and aspirations for the future. Similar questions were asked in an open-ended but fairly structured interview. Relevant questions will be specified in the discussion of results.

Measures of Personality. Since the trait of rigidity seems especially relevant to occupational choice, and also has received extensive attention in recent psychological literature, a number of related measures of this trait were employed in addition to tests measuring other types of personality characteristics. The measures employed were:

(a) The F-Scale, a measure of authoritarianism or rigidity devised and described in detail by Adorno et al. (1950). Frenkel-Brunswik (1949) has described intolerance of ambiguity (rigidity) measured by this scale as a central personality trait and although many criticisms have been made of the instrument and the concept (Christy and Jahoda, 1954), various positive results suggest validity of the theorizing of the California group.

(b) A Scale of Attitudes toward Rigidity of Habits. This scale, developed by Meresko, et al. (1954), correlates about .60 with the F-Scale, but on the surface at least would seem to be more a measure of rigidity of habits and less a measure of "bias-proneness" than the F-Scale. It was included for this reason.

(c) The Inventory of Beliefs. This scale, developed by Stern (1956) from a preliminary form developed under auspices of the American Council on Education, is presented by the author as a refined measure of the type of trait tapped by the F-Scale. The test yields two scores, one dealing with "stereopathy," one with "rationality."

(d) The Guilford-Zimmerman Temperament Scale. The personality measure based on extensive factor analysis studies yields a variety of scores dealing with a number of facets of personality: general activity, restraint, ascendance, sociability, emotional stability, objectivity, friendliness, thoughtfulness, personal relations, masculinity.

(e) Manifest Anxiety. Anxiety may be viewed as a drive, as an adjustive (maladaptive) characteristic, or as an index of quality of adjustment. However defined, this trait has also received considerable attention in the psychological literature of the last decade. The scale used in the present study is a brief 20-item inventory which emerged from an item analysis of the Taylor Manifest Anxiety Scale. Its correlation with the Taylor scale is .93; its reliability is .76 (Bendig, 1956).

Perceived Potentiality of Chosen Occupation for Satisfying Needs.

It was of special interest in the present study to learn how individuals perceived the potentiality of the occupation of their choice for satisfying needs. A special device was constructed for this purpose, in which the need descriptions contained in the Edwards' Manual (1953) were presented in slightly adapted form as thumbnail sketches of particular personality "types" and subjects were asked to rate the degree to which this particular type of person would likely be satisfied or frustrated in the occupation chosen by the respondent. A sample "type" description and rating scale follows:

TYPE 1. This person has a high need to achieve. He likes to do his best, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems, to be able to do things better than others, to get ahead, to be a big success.

Will this occupation offer him opportunity for satisfying experiences or will it pose frustrations? And to what degree? Circle one number to indicate your judgment.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
This occupation				No special				This occupation will		
will pose exceedingly				satisfactions				offer exceedingly		
high frustration				or frustrations				high satisfactions		

Similar descriptions were presented for 14 of the 15 needs in the Edwards Scale (heterosexuality was omitted), and descriptions were developed for four other needs: (1) need for security; (2) need for social status; (3) need for intellectual stimulation and understanding; and (4) need for substantial material gain.

Background Information. The status of the subjects with respect to vocational choice, a variety of background information, information regarding career motivation (mentioned above), and other information about the subjects past and current status was obtained by means of direct questions contained in a "personal data" inventory. Various relevant questions from this inventory are presented where appropriate in the body of the report.

Information had been desired as to background family relations with special reference to (a) childrearing practices and home atmosphere, (b) closeness of attachment to parents, and (c) relationship with siblings. Although a special instrument was prepared, it was not possible to obtain data from a large enough number of subjects to warrant analysis as planned. Accordingly this instrument is not described.

The Interview. It was anticipated that interview procedures would yield significant data about the chronology and pattern of emerging choices, about the type of motivations and external influences that were involved in particular choices, and something about the future hopes, plans, and job perceptions of the subjects. An interview schedule consisting mainly of open-ended questions was constructed. Not only does the interview procedure permit the collection of more complete histories, since data can be elicited by "probing," but also permits the maintenance of the unstructured character of the procedure, since the subject cannot examine the total schedule prior to responding to a part. The interview took approximately one hour. Questions asked are described at appropriate places in the report.

The Pattern of Testing

As indicated above the original plan called for the administration of the various tests (but not the interview) in three two-hour group sessions. The sequence in which the tests were administered follows:

Session I:

Strong Vocational Interest Blank
Rigidity of Habits Scale
Brief Anxiety Scale
Edwards Personal Preference Schedule

Session II:

F-Scale
Guilford-Zimmerman Temperament Scale
Personal Data Inventory
Inventory of Beliefs

Session III:

McClelland Achievement Need Scale
Personality Types and Occupations
Family Relationships Questionnaire

As noted in the discussion of methods of recruiting subjects, it seemed advisable to reduce the number of tests to a basic battery consisting of those tests most specifically related to the hypotheses of the study. The tests selected follow in the order in which they were administered: (1) The Edwards Personal Preference Schedule; (2) The F-Scale; (3) The Meresko Scale of Rigidity of Habits; (4) The Brief Manifest Anxiety Scale; (5) The Personal Data Inventory; (6) The Instrument Dealing with "Personality Types and Occupations" (Potentiality of Occupation for Satisfying Various Needs). These tests were administered in a group setting or individually in the research center. Subjects who had participated in only one or two of the initially planned three sessions were invited to complete those instruments lacking in the "basic battery" described above.

Of all the information collected, only that most germane to the initial purposes of the study are presented in this report. Some information will be useful in connection with additional analyses (e.g. background factors related to motivation; courtship status and occupational orientation). In some instances, questions asked seemed not to elicit the material anticipated; in some instances the number of subjects responding to a particular device (e.g., as in Testing Session III) was too small to warrant analysis.

The Subjects of the Study

A total of 1,034 students, 459 men and 575 women, participated in the investigation, though not in all phases. Some were interviewed only, some took various tests administered during one or more of the testing sessions, but the large majority responded to at least the "basic battery" of tests. After rejection of some 16 men and 32 women because of not being of the white race, not qualifying as juniors or seniors, or being of non-American or non-European background, there remained a total of 443 men and 543 women.

The main analyses to be presented in this report consists of comparisons of those, regardless of college in which enrolled, who selected particular occupations. In the personal data sheet the question was asked, "Do you think you know in what occupation you want to engage after college?" If the answer were "yes", the respondent was asked to specify the occupation and rate the degree of confidence he felt in his choice. In setting up the occupational choice groups, only those individuals who felt "quite certain" or "reasonably certain" of their choices were included. Once groups were set up on this basis, preliminary analyses indicated wide variations with respect to age. Some limitation seemed desirable, and after inspection of the age distribution all men were eliminated from these comparisons who were over 26 years of age, and all women who were over 22. Some 30 women were rejected on the basis of age and another 30 who qualified in terms of age were rejected for low rating of occupational choice. Another 65 women were rejected because of "no data" in the occupational choice category of the personal data questionnaire. This seemingly large number included those individuals who were interviewed only, and thus did not fill out the personal data form. A total of 420 women remained in one or another category of occupational choice, including the special category of "no choice". Since the focus of the study was upon students selecting careers in education, various sub-groups within this category were established. A similar shrinkage of the population of men occurred with the result that out of the original 459 subjects some 276 were included in the phase of the analysis dealing with occupational choice, including the special category of "no choice".

Beyond the standard women's occupations of education, nursing, and secretarial work (this category did not appear among our population), the choices of women are widely scattered. It was thought that, although extremely heterogeneous, a category of women choosing "non-standard women's occupations" would be meaningful in the analysis because they presumably represent women with different types of motivations and backgrounds which would lead them to be less acceptant of cultural pressures and expectations which over the years have defined the occupational role of women. It will be recalled that some of the hypotheses involved predictions regarding this group.

Because of the broad categories into which the women were classified, the number of cases in any particular category (except for certain of the sub-groups within the teaching categories) were reasonably large, ranging upwards from 47, though only 22 cases appeared in the "no choice" group. Among the males in the study the number of cases in any one category was substantially smaller, in part because of the smaller sample of males in the study, but also because of the wide range of choices open to men. In a number of the occupational categories, N's were under 20. The total education group, the engineering group, and the no choice group numbered 40, 60, and 41 cases respectively. These small N's obviously cause certain problems in analysis, but no reasonable way of constructing larger categories was apparent and it was accordingly decided to maintain these 12 groups even with the small numbers.

In order to overcome somewhat the disadvantage of small numbers of cases in the occupational choice groups, especially in those phases of the analyses dealing with tests other than the "basic battery," the subjects who met the various criteria for inclusion in the occupational choice groups (including the "no choice" group) as well as those who specified an occupational choice but with low confidence were classified into groups according to college in which enrolled. Such classification is obviously less clear-cut for purposes of the study than the occupational choice classifications, since individuals going into the same occupation (law, for example) might be enrolled in different colleges (e.g., liberal arts or business administration) and individuals enrolled in a college might actually have made no choice or be going into occupations quite different from that implied by the training offered by the particular college. Nonetheless, classification by college offered the advantage of providing larger groups presumably of people who were somewhat similar in their career orientations in view of the fact that they had chosen colleges which offered training oriented toward a particular type of occupation. (Totals of approximately 500 women and 350 men comprised the college groups.) Most of the college groups (nursing, elementary and secondary education, and engineering) are likely quite homogeneous with respect to choice. "Liberal arts" women include most of those who have chosen non-standard women's occupations, as well as many of those who were quite uncertain of their choice or had made none. The men in the College of Business Administration are heterogeneous in choice, though, of course, largely oriented toward the business world. Liberal arts men are probably the most heterogeneous in choice, and, like liberal arts women, include more men who are uncertain of their choice.

The tables throughout the report carry information regarding the size of groups being compared, but the actual N's may vary slightly from those given for individual comparisons because of occasional missing data. Where variations in group size are marked, they are apparent or are noted.

Background Characteristics of Vocational Choice and College Groups

Although it was not possible to equate the groups with respect to various background and related factors, it is important that the reader have available certain of the more salient data (of all that was available) regarding the various groups studied. It may be recalled that it was assumed that background conditions and characteristics are not important in themselves in vocational choice but instead that their influences are mediated through personality and motivational variables of the type investigated, through perceptions of types of jobs available or having potential for satisfying various needs, or through obstacles posed to

achievement of goal. This statement is not meant as a rationalization for not controlling on background variables, but rather to suggest that presumably good arguments may be marshalled for viewing differences in background factors as relatively unimportant in themselves.

Age and Status in College. Table 1 contains information regarding the mean age, the distribution between junior and senior year, and the mean number of earned credits for each of the college groups. Though facts are given in the table only for the college groups, analysis of variance provided no basis for rejecting the hypothesis that the various groups (both occupational choice and college groups) were representative of the same population with respect to age. The same could not be said for status in college, as reflected in mean number of credits earned. In this instance F's were significant at the .05 level of confidence. Inspection of the mean hours of credit will reveal that the School of Nursing students as a group had just entered their junior year. This special circumstance of sampling was due to the fact that most senior nurses were in off-campus practicums during the course of the study, and thus found it exceedingly difficult to participate. It proved possible, however, later to obtain the cooperation of one class of some 40 students, most of whom were just beginning their junior year. Juniors in other colleges were tested mainly in the second semester of their junior year. It should be noted that earned credit is not an exact index of college status since the means were computed from data indicating the number of hours on which Syracuse University grade-point-averages were based. Such figures fail to reflect class status of transfer students.

Among men, the analysis of variance indicated that the hypothesis that the various occupational choice and college groups were random samples of the same population was not tenable in the instance of age and number of earned credits. Since it is conceivable that age might be a factor in determining observed differences among the subgroups in various personality and motivational variables, correlations between age and most of the variables measured by the basic battery were computed. The groups (and variables) involved were determined by convenience in terms of location of data on IBM cards and were based on 289 men and 434 women. The highest correlations with age in the case of the men's Edwards' scale scores were .15 (endurance), -.12 (autonomy), and -.11 (succorance). All others were .10 or lower. Of the need variables in the "Personality Types and Occupation" scale, only one exceeded .08: "exhibition", $r = -.12$. The "Rigidity of Attitudes toward Habits" scale correlated .04 with age. Correlations were similarly low in the case of women. On the Edwards scale only achievement ($r = .13$) and deference ($r = .14$) correlated with age in excess of .07, and on the "Personality Types and Occupations" scale only the variable relating to affiliation ($r = .16$) correlated with age better than .09. These findings suggest that differences among the groups with respect to age is not a serious matter.

Table 1. Comparison of the several college groups with respect to mean age, mean hours of earned credit, and percentage distribution between junior and senior year.

Group	N	Mean Age	Mean Hrs.Cred.	Percentage	
				Jr.	Sr.
WOMEN:					
Nursing.....	49	20.0	67	73	26
Secondary Education.....	152	20.1	82	70	30
Elementary Education.....	205	20.1	81	69	31
Liberal Arts.....	103	20.0	77	67	33
Anal. of Var. (F,p)		.5 (NS)	4.3 (01)		
MEN:					
Secondary Education.....	62	21.9	82	65	35
Engineering.....	77	22.7	91	58	42
Business Admin.....	84	21.9	76	68	32
Liberal Arts.....	132	20.9	73	70	30
Anal. of Var. (F,p)		12.2 (001)	6.3 (001)		

Table 2. Academic aptitude of the several college groups as measured by the American Council on Education Examination (standard scores based on Syracuse University data) and academic performance as measured by grade-point averages (A,3; B,2; C,1; D,0.)

Group	N	Mean ACE Score	Mean Grade Point Average
WOMEN:			
Nursing.....	46	52.9	1.85
Secondary Education.....	131	52.2	1.81
Elementary Education....	173	47.6	1.73
Liberal Arts.....	92	56.1	1.71
Anal. of Var. (F,p)		6.8 (001)	1.9 (NS)
MEN:			
Secondary Education.....	50	46.0	1.47
Engineering.....	55	53.1	1.60
Business Admin.....	63	51.1	1.39
Liberal Arts.....	102	51.1	1.53
Anal. of Var. (F,p)		4.7 (01)	2.8 (05)

Academic Aptitude and College Grades. To what degree do individuals who select various occupations or enter different colleges differ in academic aptitude or in grades earned? For the present sample, the facts for the college groups only are presented in Table 2. The measure of academic aptitude is the American Council on Education Test administered to the subjects at college entrance. The F's yielded by analysis of variance indicated that there are significant differences among the occupational choice groups and among the college groups, i.e. that these groups may not with confidence be assumed to be drawn from the same population with respect to college aptitude. Among women, the elementary education groups scored lowest; the non-standard women's occupation group, those in secondary teaching (social sciences, English), and those with no choice scored highest. Among men, those in secondary education were lowest, those in law and engineering highest.

Table 2 also contains information regarding the academic achievement of the various college groups as reflected in college grades. In this instance, in contrast to academic aptitude where a common measure was applied to all students, grades will reflect the grading procedures and standards of the individual colleges or departments within colleges. Analysis of variance indicated that the hypothesis that these groups are random samples from the same population with respect to grades cannot in general be rejected, though in one case (men by college) the F was significant at the .05 level of confidence.

To what degree may the differences in personality and motivational variables be attributable to differences in college aptitude as reflected in the ACE Test? To provide some evidence on this question, since academic aptitude was not controlled in the present study, correlations were computed between ACE scores and most of the measures comprising the "basic battery" for the Liberal Arts population, with N's ranging from 80 to 105. The need variables reliably correlated with ACE scores were, in the case of men, "autonomy", "surogrance", and "change" (r 's of .38, -.20, and .23, the first being reliable at the .001 level of confidence, the latter two at the .05 level), and, in the case of women, "order." Here the r was -.24, significant at the .05 level of confidence. Achievement need score correlated .09 and .11 with ACE for men and women respectively, and nurturance needs correlated with ACE .08 and -.18 for the same groups. Only the autonomy variable in the "Personality Types and Occupations" scale was reliably correlated with ACE in the case of men (r .41). In the case of women reliable r s (.05 level) were obtained in the instance of deference (-.24), affiliation (-.24), and nurturance (-.22). Correlations with ACE of the F-scale, and the brief manifest anxiety scale were non-significant, while the "Rigidity of Attitudes toward Habits" scale correlated -.31 and -.33 with ACE for men and women respectively, both r s being reliable at the .01 level of confidence. Although correlations are higher than those obtained with age, they generally run quite low.

Religious Background and Present Religious Affiliation. A number of studies have shown that various religious groups are not proportionately represented in the different occupations, and it is commonly assumed that those reared in the traditions characterizing different religious groups emerge with or possess varying patterns of needs. It is thus of some interest to examine the degree to which the various religious groups are represented in the various college and occupational choice sub-groups of this study. Table 3 contains the percentage distribution of the subjects among Catholic, Jewish, Protestant, and "others" as regards both background and present affiliation or preference. In the case of background, "other" includes various mixed backgrounds as well as "none." Examination of the facts for women reveals a high proportion of students of Jewish background and present affiliation selecting general elementary education, whereas relatively few from this background selected nursing. On the other hand, a large proportion of those having no vocational choice were of Catholic affiliation though almost half of this group came from mixed family backgrounds.

Although the number of cases is much smaller in the instance of occupational choice sub-groups of men, it is of interest to note that Jewish students were not frequent among those going into education though they were relatively frequent among those selecting law.

Occupational Background. On the personal data inventory each subject was asked to indicate his father's occupation and to describe what his father did. This information was coded in two ways. First, the occupation was classified as to type in one of the following nine categories: (1) Professional and Technical; (2) Managers, officials, and Proprietors; (3) Clerical and Kindred; (4) Sales; (5) Craftsmen, Foremen, and Kindred; (6) Operatives; (7) Service Workers and private Household; (8) Laborers; (9) Farming.

The major contrast to be noted in Table 4 is in data dealing with the college groups. One of the more striking findings is the relatively high proportion of women at Syracuse University coming from professional homes as compared to the proportion of men from this type of background. Among women, 25 per cent of the nurses but 40 per cent of liberal arts students come from professional homes, whereas the proportion coming from business backgrounds are approximately equal. Among men, only 11 per cent of the business administration students come from professional homes as compared to 26 per cent of education students. In contrast, 50 per cent of business administration students come from business homes whereas only 19 per cent of engineering students have this type of background.

Table 3. Percentage of the Several Groups Reporting Various Types of Religious Background and Present Affiliation or Preference.

Group	N	Family Background				Present Affiliation			
		Cath.	Jew.	Prot.	Oth.*	Cath.	Jew.	Prot.	Oth.*
WOMEN (Occup.)									
1 Nursing	48	13	8	73	6	15	8	75	2
2 Math-Sci Teachers	17	24	29	35	12	18	24	35	24
3 Eng-Soc Sci Teachers	36	8	25	56	11	14	19	56	11
4 Art-Mus Teach.	41	10	22	63	5	12	22	66	0
5 Other Sec Teachers	29	7	21	59	14	17	21	62	0
6 Nur-Kind Teachers	16	6	31	50	13	13	25	50	13
7 El Spec Ed Teachers	27	4	26	63	7	8	26	63	7
8 Gen El Ed Teachers	103	8	47	38	8	12	46	42	1
9 Non-Stan Wom Occup	79	10	28	51	12	15	27	52	6
10 No Choice	24	25	25	29	21	46	25	21	8
Total	420	10	29	51	10	15	27	53	5
MEN (Occup.)									
1 Engineering	61	25	5	56	15	30	7	56	8
2 Phys Ed Teach	12	33	17	42	8	25	17	33	25
3 Art-Mus Teach	10	50	0	50	0	40	0	50	10
4 Other Sec Teachers	19	37	11	53	0	37	5	58	0
5 Medicine & Sci Res	23	26	13	48	13	26	13	52	9
6 Law	24	17	42	25	17	25	42	25	8
7 Acc't & CPA	12	42	8	50	0	42	8	50	0
8 Sales	17	24	29	47	0	29	24	41	6
9 Misc Bus & Adv	17	18	35	41	6	24	29	41	6
10 Ind Pers & Prod Mgmt	18	28	22	50	0	22	22	50	6
11 NEC	19	26	16	58	0	21	16	58	5
12 No Choice	44	30	21	43	7	27	18	41	14
Total	276	28	17	48	8	28	16	47	8

* Other includes "mixed" (e.g. Catholic-Protestant) as well as "none", and 1 male and 1 female no data.

Table 4. Percentage Distribution of the Various Occupational Choice and College Groups According to Occupational Classification of Father.

Group	N	Occupational Classification*								
		1	2	3	4	5	6	7	8	9
WOMEN (Occup.)										
1 Nursing	47	26	38	4	11	11	0	6	2	2
2 Math-Sci Teach	17	18	53	0	24	6	0	0	0	0
3 Eng-Soc Sci Teach	35	23	37	3	14	9	0	6	3	6
4 Art-Mus Teach	41	34	22	0	17	15	2	5	2	2
5 Other Sec Teach	28	32	4	0	14	11	0	4	0	4
6 Nur-Kind Teach	15	20	47	0	7	7	13	7	0	0
7 El Spec Ed Teach	27	41	33	0	11	11	0	4	0	0
8 Gen El Ed Teach	101	34	42	2	14	7	0	1	0	1
9 Non-Stan Wom										
Occup	76	34	42	3	11	5	1	1	0	3
10 No Choice	22	50	36	0	5	0	0	9	0	0
MEN (Occup.)										
1 Engineering	61	20	23	5	10	20	15	0	2	5
2 Phys Ed Teach	12	0	8	0	17	42	8	8	8	8
3 Art-Mus Teach	10	22	33	11	11	0	11	0	11	0
4 Other Sec Teach	19	22	39	0	11	6	11	0	11	0
5 Medicine & Sci										
Res	23	36	9	0	5	27	18	5	0	0
6 Law	24	22	35	4	22	17	0	0	0	0
7 Acc't & CPA	12	0	27	0	18	36	9	0	9	0
8 Sales	17	29	57	0	14	0	0	0	0	0
9 Misc Bus & Adv	17	12	53	0	6	12	0	12	6	0
10 Ind Pers & Prod										
Mgmt	18	18	41	0	6	29	0	0	0	6
11 NEC	19	28	33	6	0	11	0	11	11	0
12 No Choice	44	22	41	2	5	15	2	2	5	5
WOMEN (Coll.)										
Nursing	48	25	40	4	10	10	0	6	2	2
Sec Ed	135	30	35	1	17	9	0	4	1	4
Elem Ed	166	33	41	1	11	9	2	2	0	1
Lib Arts	88	41	39	2	8	5	2	2	0	1
MEN (Coll.)										
Sec Ed	54	26	24	2	13	13	6	6	7	4
Engineering	69	23	19	4	7	20	16	0	6	4
Bus Ad	62	11	50	2	10	16	3	3	3	2
Lib Arts	132	18	27	2	8	14	4	2	2	2

* Occupational classifications are as follows: (1) Professional and Technical, (2) Managers, Officials, and Proprietors, (3) Clerical and Kindred, (4) Sales, (5) Craftsmen, Foremen, and Kindred, (6) Operatives, (7) Service Workers and Private Household, (8) Laborers, (9) Farmers.

Occupation of father was coded as to status level, utilizing with some slight modifications the procedures described by Warner and others (1949). In this scale "1" represents the highest level of status and "7" the lowest level. Table 5 contains the proportion of subjects falling in different rating categories and also the median social level for each occupational and college group. It will be noted that among women the median values do not differ greatly. Excluding the "no choice" group, the median values of the highest and lowest group differed by only .63 scale points. The "no choice" group appears to come from somewhat higher level home backgrounds than other subjects. When the college classifications are examined in the instance of women, liberal arts groups are seen to have the highest level of background whereas the nursing group has the lowest level of the four groups categorized.

Among men there appears to be greater variability in median levels among the various occupational choice groups. Those selecting sales work tending to come from higher backgrounds, whereas those selecting industrial personnel and production management and those going into physical education come from substantially lower social backgrounds. The difference in median values from the highest to the lowest groups was 3.0 scale points. Inspection of the data for men classified according to college backgrounds show business administration students to be highest in social level backgrounds with education, liberal arts, and engineering students following in that order.

The facts regarding education of parents parallel the facts for occupational background, and accordingly are not presented.

Limitations of the Sample

Attention is invited to four limitations in the sample involved in the present study. The first, namely lack of control on factors such as intelligence, age, religious background, socio-economic status and the like, has already been noted. Although as previously mentioned the writers suggest that the contribution of these variables to the matter of occupational choice is not direct but rather is mediated through the personality and motivational variables which they influence. This line of argument would require no control over certain background factors, and fortunately age and intelligence (as measured by the ACE) bear little relationship to the personality variables investigated, but it nonetheless would be desirable for precise analysis to have exercised such control. Unfortunately, the numbers of cases available for analysis did not permit such equating of groups.

A second limitation of the study is its failure to include a non-college sample, and hence to contrast subjects going into the various professional and business fields with those who have selected quite different occupations and have limited schooling. The fact that all of the subjects in this study were well along toward the completion of their college work results in a group

Table 5. Percentage Distribution of the Various Occupational Choice and College Groups According to Occupational Level of Father

Group	N	Occupational Level*							Mdn
		1	2	3	4	5	6	7	
WOMEN (Occup.)									
1 Nursing	47	17	36	21	9	6	11	0	2.41
2 Math-Sci Teach	17	6	41	41	6	6	0	0	2.37
3 Eng-Soc Sci Teach	35	23	26	29	17	3	3	3	2.55
4 Art-Mus Teach	41	44	15	12	20	5	5	0	1.92
5 Other Sec Teach	28	21	36	18	18	7	0	0	2.30
6 Nur-Kind Teach	45	20	33	20	7	7	13	0	2.40
7 El Spec Ed Teach	27	41	19	26	7	4	4	0	2.00
8 Gen El Ed Teach	101	29	36	26	8	2	0	0	2.10
9 Non-Stan Wom Occup	76	33	29	24	11	3	1	0	2.09
10 No Choice	22	50	18	23	0	5	0	5	1.50
MEN (Occup.)									
1 Engineering	60	17	17	23	18	12	10	3	3.21
2 Phys Ed Teach	12	8	8	0	17	42	17	8	4.90
3 Art-Mus Teach	9	11	33	22	11	0	22	0	2.75
4 Other Sec Teach	18	17	22	33	0	6	11	11	2.83
5 Medicine & Sci Res	22	23	18	14	5	23	18	0	3.23
6 Law	23	17	35	22	13	9	4	0	2.44
7 Acc't & CPA	11	0	36	9	18	18	18	0	3.75
8 Sales	14	36	36	29	0	0	0	0	1.90
9 Misc Bus & Adv	17	29	24	24	12	6	6	0	2.38
10 Ind Pers & Prod Mgmt	17	12	18	35	6	12	0	0	3.09
11 NEC	18	28	28	6	17	11	6	6	2.30
12 No Choice	41	22	22	23	12	12	5	2	2.75
WOMEN (Coll.)									
Nursing	48	17	38	21	8	6	10	0	2.39
Sec Ed	135	28	27	22	16	4	1	1	2.30
Elem Ed	166	30	31	24	9	4	2	0	2.15
Lib Arts	88	36	30	24	5	6	1	0	1.99
MEN (Coll.)									
Sec Ed	54	22	20	19	7	17	9	6	2.90
Engineering	69	19	13	20	17	12	13	6	3.39
Bus Ad	62	15	32	26	6	13	9	0	2.63
Lib Arts	132	17	20	16	9	9	5	1	3.36

* Occupational level was rated on a seven point scale; "1" is highest level, "7" lowest.

that is relatively homogeneous in background and plans for the future. Under these circumstances it might well be expected that differences between subgroups of the present sample would be minimal.

A third limitation in the sample is lack of control over selection resulting from the methods utilized in recruitment of subjects. Obviously in any study of this type where it is not feasible to test all individuals either through University edict or in classes, the only subjects available for study are those who volunteer. It is entirely possible that some of the traits involved in the present study are also the types of traits that lead people to volunteer. It is conceivable that these traits would operate in such a way as to minimize or obscure actual differences that exist among people selecting different occupations as future careers. To illustrate, it might be assumed that people with high nurturance needs like to help researchers as well as to help other people. Conceivably people with high nurturance needs might be relatively infrequent among those choosing engineering, but would volunteer in disproportionately large numbers with the result that engineers in this study would seem to be more nurturant than engineers as a group really are. When contrasted with people choosing education, a group hypothesized to be high in nurturance needs, the differences would be less pronounced than is actually true of the unselected populations. The present investigators have no way of knowing the degree to which selective influences of this type have affected the results.

Still another limitation in the sample is one inherent in any investigation conducted within a single university, and grows out of the fact that departments and colleges are not uniform in quality and other characteristics and thus likely do not attract equally representative samples of the larger population seeking the different types of training offered by the various schools within the university. Thus one university might have an exceedingly outstanding college of engineering and a notoriously mediocre school of education. Presumably its engineering students would be so selected as to be exceedingly promising, exceedingly highly motivated, and exceedingly productive. The school of education students in the same university conceivably would be those of low caliber, unmotivated and disinterested, and low in academic output, as compared not only with the engineering students in the same university, but as compared with education students in another university with a highly respected school of education with high standards. Students in the latter college might be substantially better in motivational and ability variables than students in the engineering school in the same university providing that in this instance the engineering school were notably mediocre. In short, the several colleges within a single university may select (or be selected by) quite different types of individuals from among the total pool of individuals making various occupational choices.

This type of selection would be exceedingly difficult to control without very substantial expenditures of money, time, and effort. Such control was far beyond the scope of the present study, but the lack of this control is nonetheless a limitation that the critical reader must bear in mind as he encounters and evaluates the results of this investigation.

Statistical Analysis

The plan of analysis followed throughout the study involved simple analysis of variance for groups of unequal numbers of cases, and where specific predictions were called for by the hypotheses presented earlier the computation of critical ratios or t tests of the reliability of differences between individual means. The greater part of the computation involved was accomplished by means of the IBM 650 computer.

A special problem arises in the handling of data by analysis of variance techniques when the assumption of homogeneity of variance is not met. Inspection of the variances to be presented in ensuing sections will show marked differences, raising the question as to whether the procedures used were appropriate. There has been, however, serious question raised by certain statisticians as the degree to which such an assumption is necessary, and whether the transformation of scores so as to produce greater homogeneity of variance is worth the labor involved. In the case of analysis of variance, evidence obtained by Norton (discussed by Lindquist, 1953) suggests that failure to correct for heterogeneity of variance alters the F value very little when compared with the F obtained when scores are transformed. Results which are reliable at a particular level of confidence in the instance of transformed data turn out to be reliable at about the same level when scores are not transformed. However, Lindquist (1953, p. 86) suggests that to be especially safe one might want to set the significance level at 2.5% if he wishes the risk of error not to exceed 5%, or at 0.1% if he wishes the risk not to exceed 1%. The reader may wish to apply these cautions in interpreting the results presented herein.

III. THE CHRONOLOGY AND COURSE OF VOCATIONAL CHOICE

The interview which provided the data for the present section consisted of a series of open-ended though fairly structured questions which focused on the course of development of vocational interests and the factors involved in each succeeding change and in vocational choice generally. The purpose of the interview was mainly that of obtaining descriptive data regarding the development of vocational interests, though a number of working hypotheses regarding the pattern of development in various subgroups were entertained. These hypotheses are set forth at appropriate points in the discussion. In general, the facts contained in this section of the report relate to (a) the chronology of vocational choice, (b) the factors involved in choice and, to some degree, the "process" of choice, and (c) the nature and degree of future orientation as regards career. Since interview data were not obtained from all subjects, requirements of sample size necessitated grouping the subjects by college of enrollment.

The Chronology of Vocational Choice

A working hypothesis of the present phase of the study is that men "selecting" the teaching profession are not particularly career oriented, i.e., are low in career motivation. Teaching may be selected not as the result of a deliberate choice, but rather because "it is something one can always do" in the case of the individuals with no (other) special interest. Entrance into some occupations (e.g. law and medicine) requires rather early planfulness so that educational requirements may be met. Other occupations (e.g. business, and, to a degree, education) have fewer specific requirements, or, at most, educational requirements that may be met in rather short time if one is already committed to or has a college education. Occupations of the latter type are available to those individuals who at a late date have failed to make a specific choice, for whatever reason. Accordingly, it was predicted that prospective male teachers would select their occupation at a later age than would other male groups (particularly the liberal arts and engineering groups) and would in various other ways evidence less career orientation. Prospective teachers may not differ from prospective business people because, as noted above, these fields, too, are available to "late choosers." We would guess, however, that prospective businessmen are more career oriented than are teachers, but for reasons extrinsic to the work, and hence would not show other evidences of low career orientation. The same predictions regarding age of choice would not necessarily hold for women in view of their general lesser concern with career and in view of the fact that teaching is a conventional and highly visible "women's occupation" toward which various cultural factors tend to influence them, and at an early age.

In the interview subjects were asked to indicate what the very first "thing they wanted to be when they grew up" was. They were then queried as to the age this interest began, and why they wanted to do this; age when this interest terminated and why; what the next interest was, when began, when stopped, and why. Thus the vocational interest history was constructed. Following the history, subjects were asked to focus upon their present choice, to indicate the age when the notion of going into this area first occurred to them, when they were first "serious" about it, and when they were "really sure." Tables 6 and 7 contain the mean ages given in response to such questioning.

It will be noted in Table 6 that little difference exists among the various groups in age of beginning first interest, except for the fact that men recalled their first interest as starting about a year later than did women. But significant differences occurred in age of beginning current interest. Those women going into nursing made their choice at the relatively early age of ten years, some four years earlier than those selecting teaching, and some six years earlier than women in Liberal Arts. Nurses made their choice at an age reliably younger than the other three groups; those in Liberal Arts at an age reliably older than the other three groups. But women going into secondary teaching did not differ reliably from those going into elementary teaching. Why these differences exist will be the subject of speculation later.

In the instance of men the above hypothesis is reasonably well supported. Those in secondary education and in business administration made their current choices at about the same age, and at an age significantly older (at the .05 level of confidence) than engineers but not significantly older than men in liberal arts.

Table 7 contains ages reported when subjects were asked to retrospect about their current choice with respect to when the notion first occurred to them, when they were first serious about it, and when really sure. The earlier choice of nurses is again evident in all three phases. The other three groups did not differ reliably except that prospective elementary teachers apparently first began thinking about their occupation at a reliably earlier age than did women in liberal arts.

In the case of men, Table 7 presents evidence for delayed choice on the part of prospective secondary school teachers. They first became serious about their current choice and were "really sure" at a later age than any of the other three college groups, but the differences were reliable, and then at only the .05 level of confidence, only when prospective teachers were compared with men in the colleges of engineering and liberal arts. (Data bearing on age when "really sure" of choice are limited to those who were at the time of the interview "really sure." Percentage of each group "not yet sure" is specified in Table 16.)

Table 6. Age of Beginning (a) First Vocational Interest and (b) Current Vocational Interest as Reported in History of Sequence of Interests.

Group	N	Beginning of First Interest		Beginning of Current Interest	
		Mn	Var	Mn	Var
WOMEN:					
Nursing....	48	7.7	7.3	10.2	17.7
Sec. Ed....	82	8.3	11.9	14.7	23.6
El. Ed.....	112	7.9	8.4	14.1	27.5
Lib. Arts..	56	7.7	9.0	16.4	17.2
MEN:					
Sec. Ed....	41	9.7	11.3	18.2	28.7
Engin.....	69	9.0	10.7	16.2	16.8
Bus. Ad....	58	8.9	11.8	18.2	29.8
Lib. Arts..	50	8.7	18.0	17.0	20.2
LEVELS OF SIGNIFICANCE OF DIFFERENCES:					
WOMEN:					
Nursing vs. Sec. Ed....	NS			.01	
Nursing vs. Elem. Ed....	NS			.01	
Nursing vs. Lib. Arts..	NS			.01	
Sec. Ed. vs. Elem. Ed..	NS			NS	
Sec. Ed. vs. Lib. Arts..	NS			.05	
Elem. Ed. vs. Lib. Arts.	NS			.01	
MEN:					
Sec. Ed. vs. Eng.....	NS			.05	
Sec. Ed. vs. Bus. Ad....	NS			NS	
Sec. Ed. vs. Lib. Arts.	NS			NS	
Eng. vs. Bus. Ad.....	NS			.05	
Eng. vs. Lib. Arts.....	NS			NS	
Bus. Ad. vs. Lib. Arts.	NS			NS	

Table 7. Age of (a) "First Notion" of Current Choice, (b) When Seriously Considered, and (c) When "Really Sure" as Reported in the phase of interview which focused upon Current Vocational Interest.

Group	N	<u>"First Notion" of Current Choice</u>		<u>Age Seriously Considered</u>		<u>Age "Really Sure"</u>	
		Mn	Var	Mn	Var	Mn	Var
WOMEN:							
Nursing.....	48	9.6	14.8	14.7	5.1	17.0	3.8
Sec. Ed.....	82	14.3	18.1	17.2	4.3	18.0	4.1
El. Ed.....	111	13.1	24.9	17.5	14.5	18.8	13.5
Lib. Arts.....	53	15.4	17.3	17.8	7.3	18.6	4.6
MEN:							
Sec. Ed.....	41	17.5	33.5	20.4	23.6	22.2	17.6
Engin.....	69	16.8	16.8	18.4	11.2	20.3	17.7
Bus. Ad.....	56	17.8	25.0	19.8	13.0	21.7	13.6
Lib. Arts.....	50	15.8	23.7	18.6	13.3	20.1	11.2

**LEVELS OF SIGNIFICANCE
OF DIFFERENCES:**

WOMEN:

Nursing vs. Sec. Ed.....	.01	.01	.01
Nursing vs. El. Ed.....	.01	.01	.01
Nursing vs. Lib. Arts	.01	.01	.01
Sec. Ed. vs. El. Ed.....	NS	NS	NS
Sec. Ed. vs. Lib. Arts	NS	NS	NS
El. Ed. vs. Lib. Arts	.01	NS	NS

MEN:

Sec. Ed. vs. Eng.....	NS	.05	.05
Sec. Ed. vs. Bus. Ad.....	NS	NS	NS
Sec. Ed. vs. Lib. Arts.....	NS	.05	.05
Eng. vs. Bus. Ad.....	NS	.05	NS
Eng. vs. Lib. Arts.....	NS	NS	NS
Bus. Ad. vs. Lib. Arts.....	.05	NS	.05

The data relative to the sequence of interest that preceded various current choices of occupations are not presented in tabular form because they seemed to show only in gross descriptive fashion the incidence of various interests at different ages, and the detailed figures did not particularly illuminate the reasons for choice of occupation. To ascertain the pattern of interest development, interest sequences were plotted, and appropriate counts made. Since two or more interests occasionally were concurrent, it sometimes happened that the same individual contributed more than one tally to a particular category; thus the figures given in this and the next paragraph are not, strictly speaking, percentages but rather the number of interests divided by the number of subjects. The numbers of cases involved in this tabulation (48 nurses, 72 secondary teachers, 81 elementary teachers, and 43 in non-standard women's occupation) were smaller than in other tables in this section, because the groups were homogeneous with respect to current choice, and were not simply grouped by college.

The early interest of nurses in their final choice was reflected in a generally lower interest in other types of occupations. In contrast, women selecting non-standard women's occupations showed an early and rather pronounced interest in varied professions. Even by nine years of age, according to their recollections of their interests, 61 per cent were oriented away from the conventional women's occupations and toward a variety of different professional goals. At age 18 the ratio of non-standard women's professions to subjects expressed as a percentage, was 121%. An interesting contrast appears between prospective secondary and elementary school teachers, particularly with reference to their much greater interest in "other professions." Secondary education women also seemed to be oriented toward non-conventional women's occupations (at age 9, 17 per cent and at age 18, 67 per cent mentioned other professions) but for some reason or other do not continue this interest. Among prospective elementary teachers the comparable figures were at age 9, 18 per cent, at 18, 32 per cent. As data to be presented later suggest, those finally selecting secondary teaching seem not altogether happy about their current choice. Prospective secondary teachers also evidence somewhat less early interest in nursing than do prospective elementary teachers. These differences would be anticipated if, as predicted, they have lower nurturance and higher achievement needs than do elementary teachers.

In the case of men, three relatively homogeneous groups were identified: 64 men whose current choices were in engineering, 29 in teaching, and 48 in business and industrial work. None of the groups evidenced interest in the social science professions; only engineers evidenced interest in the physical sciences. Men selecting business and engineering were little interested in teaching at any age, and prospective teachers and engineers showed little interest in business during the course of their development. Nor were prospective teachers and business men much interested in engineering. One of the most striking features of the data was the substantial interest in "other professions" shown by prospective

men teachers at age 18, approximately three-quarters expressing such interests compared to 44 per cent of the business group and 35 per cent of the prospective engineers. This, of course, in part reflects the slower emergence of choice on the part of prospective teachers, but suggests also the possibility of more frequent compromise in reaching the choice of teaching or lower motivation in pursuing interests which may have been present at age of beginning college but which may have required more decisiveness or energy output.

A notable finding reported in Tables 6 and 7 as well as in the interest sequences just discussed is that for their respective sexes nurses (especially) and engineers tend to orient themselves toward their particular occupations at a relatively early age compared to other groups in the study. Table 8 documents this early choice in still another way. Prospective nurses and engineers also have reliably fewer other occupational interests during the course of their development than have the other groups. With the exception of engineers versus male secondary teachers (where the difference did not prove reliable) these differences were significant at the .01 level of confidence.

The Process of Vocational Choice: Influences and Compromises

In general, the hypotheses underlying the present study emphasize personality and motivational variables. While the occupation chosen will tend to reflect the self-concept of the individual and his pattern of needs, various factors will determine how he perceives an occupation and what occupations become a part of his psychological life-space at the time choices are made. Also there will likely be, for many individuals must be, some compromise with reality as development proceeds and, especially, as maturity is reached. Facts relevant to these matters are presented in this section, as "process" is revealed in reasons given for becoming interested in or discontinuing interest in various types of work.

The data in this section are basically percentages which indicate the proportion of the various groups whose histories evidenced certain characteristics. Since a given history might be classifiable among more than one category in a given table the columns may total to more than 100. In every instance, the categories employed emerged from the responses themselves. Though the number of categories was in part determined by the practical limitation of the punches available in one or two columns of an IBM card, this was in no instance a serious limitation.

Results are presented in the report for a given category only if at least 15 per cent of at least one group was so characterized. Also, instead of presenting detailed information regarding reliability of differences between percentages an approximate yardstick was computed which may be applied in

Table 8. Mean number of vocational interests other than current held by subjects during course of development.

Group	N	M	Var
WOMEN:			
Nursing.....	48	1.7	1.1
Sec. Ed.....	80	2.3	1.7
El. Ed.....	112	2.3	1.8
Lib. Arts.....	56	2.6	2.1
MEN:			
Sec. Ed.....	41	2.7	1.6
Engin.....	69	1.8	1.8
Bus. Ad.....	58	2.5	1.9
Lib. Arts.....	50	2.6	2.3
LEVELS OF SIGNIFICANCE OF DIFFERENCES:			
WOMEN:			
Nursing vs. Sec. Ed.....			.01
Nursing vs. El. Ed.....			.01
Nursing vs. Lib. Arts.....			.01
Sec. Ed. vs. El. Ed.....			NS
Sec. Ed. vs. Lib. Arts.....			NS
El. Ed. vs. Lib. Arts.....			NS
MEN:			
Sec. Ed. vs. Eng.....			NS
Sec. Ed. vs. Bus. Ad.....			NS
Sec. Ed. vs. Lib. Arts.....			NS
Eng. vs. Bus. Ad.....			.01
Eng. vs. Lib. Arts.....			.01
Bus. Ad. vs. Lib. Arts.....			NS

connection with percentages presented in this report. The median of all percentages computed (not just those presented in the tables) was 16. The smallest N's were of the magnitude of 40 and 48, though N's in certain comparisons occasionally fell slightly below these figures. Using these values, the standard error of a difference becomes 7.8 per cent. Thus a difference of approximately 15 (1.96 times the standard error) is significant at the .05 level of confidence and a difference of approximately 20 (2.58 times the standard error) is significant at the .01 level of confidence. With N's of the same size the required difference would be larger as percentages increase from 16 to 50 per cent and smaller as they decrease below 16. Similarly the required difference would be smaller as the N's involved in the particular comparisons increase beyond those used in the computation.

General Factors in Choice. First to be considered are the reasons the subjects gave for beginning their first interest and their current interest. Since (it will be recalled) the first vocational interest reported by our subjects was at a mean age of approximately 8 and 9 years for girls and boys respectively and current interest was begun at mean age of about 14 and 17 (or 18) for girls and boys, respectively, comparison of the data for the two ages will give a rough indication of certain developmental trends.

The responses given by the subjects were classifiable into the following categories:

- (1) Identification with role associated with occupation: glamour associated with war time role, thrill, excitement, books, plays, radio, theatre, childhood games (pretending, playing _____, nurses kit).
- (2) Identification with person engaged in this occupation: parents, other relatives, biographies, specific mention of some individual.
- (3) Satisfaction associated with specific activities or skills of occupation: piano or ballet lessons, "liked to take things apart," athletic activities, courses or subjects taken in school, interest in science. (Previous experience working with children was coded here rather than as nurturance need.)
- (4) Influence or suggestion of persons (not identification): encouraged by parents, relatives, teachers, friends. Boys with good math grades encouraged by teacher.
- (5) Reference to some need satisfaction: If satisfaction of some need is experienced, it was coded here, and then the character of the need was specified in the next column.
- (6) Special conditions of occupation: good hours, vacations, pension, sick pay, etc.

- (7) Job secondary to and/or compatible with marriage and family: job availability, goes well with marriage, planning to marry, "I became engaged," "able to work and still take care of own kids," can always get job, can get job wherever I live."
- (8) Job itself seems secondary or not of special interest or attitude even negative, but provides situation where available skills, interests can be used. (If specific activity, e.g., liking for art, is mentioned and attitude toward teaching is positive it was coded as #3 alone; if evidence is clear that subject selected teaching, for example, so she use art and there was no other feasible way, or if attitude toward teaching was negative, response was coded here.)
- (9) Evidence of choice by default: "nothing else I could do," chosen because of lack of other choice, "just drifted" into.
- (10) General or vague interest without specification: "just liked it," "just appealed," "passing impression," "random thought." "Always liked to be in school." "The interest and enjoyment was great."

Specific needs coded in Category 5 above were also classified in the following categories:

- (11) Perception that occupation will satisfy needs associated with achievement, prestige, status and/or high monetary returns.
- (12) Perception that occupation will satisfy needs associated with nurturance and helping others: liked children, to help people, to work with people or children, to teach handicapped.
- (13) Perception that occupation will satisfy needs associated with job security and stability, including steady or "adequate" income.
- (14) Perception that occupation will satisfy needs associated with variety and change.
- (15) Perception that occupation will satisfy needs associated with autonomy and independence: "Mother discouraged it, so I wanted to prove I could do it"; "Resisted because father was a teacher."
- (16) Perception that occupation will satisfy affiliation needs: interest in people; interacting with people; like to work where there are people.
- (17) Perception that occupation will satisfy need for order and structure.

- (18) Perception that occupation will satisfy need for intellectual stimulation and curiosity.
- (19) Specific need expressed but not classifiable in above categories: Exhibition: encouraged by people; creativity: do something worthwhile and meaningful.
- (20) Perception that occupation will satisfy needs in general (no specific need indicated).

The above brief descriptions and sample responses add meaning to the general labels employed in Table 9, and also specify the categories that, because of relative infrequency of mention, do not appear in that table where the essential findings are presented. As indicated earlier facts are presented only for those categories into which at least 15 per cent of at least one group were categorized. In general, the emphasis in this table is upon identification with a role or with a person, and upon need satisfaction as major variables in occupational choices. Identification with a role (glamorous, etc.) and to some degree with a person in the individual's environment seemed to play an especially important role in first occupational orientation, but to become less important as age increased, as reflected in responses for current choice. This trend is especially clear in the case of what has been called "role identification." Identification with a person tends to remain a significant factor, but is of somewhat less importance in current than in first choices.

Identification with a role tended to be a more important factor for certain college groups as compared to others. Prospective nurses, engineers, and business men tended in their first interest to be attracted by the glamor of the occupation. Liberal arts and especially education men reported this as a factor reliably less frequently. But this influence is seldom expressed in the instance of current choice, except in the instance of nurses. However, it will be recalled that nursing students made their current choice at a much younger age than did others and presumably were being influenced by the process-variables characteristic of the younger maturity level.

While maturity level is apparently a factor in the degree to which youngsters are influenced by glamor, group differences suggest that personality or cultural variables may also be significant factors in susceptibility of different groups to this influence. Many of our subjects did not report reasons suggestive of role identification. And, those groups where role identification was most prominent tend, on the surface at least, to be interested in those occupations which are among those most glamorized in the American society--the nurse, the engineer, the business man. As a check of this we asked subjects if they had ever read any books (fiction, biography, autobiography) about the field of their current choice. In the case of prospective nurses, the results were striking. Ninety-two percent reported reading such books,

Table 9. Percentage of subjects whose responses regarding reasons for beginning initial and current interests were classifiable in various categories.

	WOMEN				MEN			
	Mur.	Sec. Ed.	El. Ed.	Lib. Arts	Sec. Ed.	Engr	Bus Ad.	Lib. Arts
Initial Interest:								
Identification with a role	43	28	32	36	8	37	42	22
Identification with a person	30	31	28	29	26	16	26	36
Satisfaction with specific activities	34	44	36	31	63	40	27	32
Need satisfaction	11	9	15	7	5	3	4	6
Nurturance	11	5	15	6	3	0	4	0
Current Interest:								
Identification with a role	36	7	5	6	0	3	2	8
Identification with a person	28	17	27	19	10	5	22	22
Satisfaction with specific activities	36	51	40	64	53	54	45	44
Influence of persons	9	11	13	2	18	22	10	16
Special Conditions of occupation	21	2	0	0	2	0	0	0
Job secondary but skills usable	0	25	1	17	5	2	3	10
Need satisfaction	21	29	44	26	32	16	17	18
Achievement	0	0	1	6	5	9	2	14
Nurturance	19	18	41	19	25	0	7	2
Number of Cases	47	83	112	56	41	69	58	50

and such reading was reported at a modal age of 10 and 11, an age which coincides with the onset of prospective nurses' current interest. The percentages are much less for the other groups. Percentages reporting reading books about their field were 35, 40 and 32 respectively for women students in secondary and elementary education and in liberal arts. In the case of men, 31 percent of students in secondary education, 43 percent in engineering, 28 percent in business administration, and 62 percent in liberal arts reported reading such books. In view of the findings for women, it may perhaps be ventured that efforts to glamorize the teaching profession in books for children might be helpful in attracting women into this field. But, on the other hand, since children spend so much time in contact with teachers, opportunities to check glamorized accounts against the realities of experience may nullify this influence for this one group, although it may be a potent factor for nurses who have fewer reality-testing opportunities. In fact, it may be argued that such identifications can be maintained only in the absence of reality-testing opportunities or in those situations where reality-testing confirms the expectations characterizing the percept. Presumably, when identification is with a person rather than with a glamorized role, continued interaction with that person as a person is less likely to reveal discrepancies as great as those encountered between glamorized accounts of and experiences with the role. Or if one becomes disillusioned with one idol, identification may shift to another who may or may not be in the same occupation. Accordingly, it may be anticipated that person identifications may remain a factor in choice to a later age than role identification, an expectation that is compatible with our findings.

A second major influence in vocational choice (at least for college students in this sample) is the possibility for intrinsic satisfactions offered by the occupation. In large part this was expressed in terms of liking for certain activities involved in the occupation, as liking for history or English; often it was expressed in terms that were classifiable in various formal need categories, as "liking to help children" (nurturance). The liking for specific activities, it will be noted, is prominent in the reasons given for both first and current choice. Especially noteworthy is the finding that those men who enroll in education tend more frequently to be attracted to an occupation because of liking the activities involved than are other groups, even in the instance of their first choice. Though they do not particularly surpass other groups in this regard in the instance of current interest, their continued (and perhaps, now that they are older, more sophisticated) concern with intrinsic satisfactions inherent in an occupation is apparent in their reliably greater emphasis upon nurturance needs as a factor in choice and their stronger tendency to mention need satisfaction as a factor in current choice.

Among women, especially noteworthy is the increased incidence of satisfaction with specific activities, as they shift from first to current choice, on the part of liberal arts students. Also noteworthy is the especially strong emphasis upon nurturance needs among elementary education students, a finding strongly in support of one of the specific hypotheses proposed in the early pages of this report. Also of interest is the finding that perhaps a quarter of secondary education women (in contrast to no nurses and only one percent of elementary education students) gave responses which suggest that for them the choice of teaching represents essentially a compromise, being important only as a role in which the individual's interests and skills are marketable. Thus the art or music student must eventually face the problem of making a living, and teaching represents a means by which their skills profitably may be employed. Liberal arts women expressed the same reason for current choice, with reliably greater frequency than did nursing or elementary education students, but not reliably less frequently than those in secondary education.

In total, the results summarized in Table 11 support the general and some of the specific hypotheses set forth at the beginning of the study. The early "seeing of oneself" in a particular glamorous occupational role is what might be expected, at an immature level, in the light of an interpretation of vocational choice in terms of self-concept. With maturity and greater opportunities for reality testing such influences become less important as these early concepts of the occupation are disputed by facts and as other considerations, particularly the importance of need satisfaction, enter the picture. The importance of nurturance needs in the choice of teaching, particularly for secondary education men compared to other men and elementary education women compared to other women was predicted. It had also been anticipated, it will be recalled, that secondary school women would be less frequently attracted to teaching by opportunities for the satisfaction of nurturance needs than would prospective elementary school teachers.

Influence of Parents. Parental influences are likely an extremely important and pervasive factor in vocational choice. The extent of this influence has been well described by Davidson and Anderson (1937) who emphasize family contributions to vocational choice along biological, cultural, and material lines. An exhaustive examination of this influence was not planned in this study, but certain relevant data were obtained. Three questions related directly to parental role in choice: (1) Why didn't you go into the same work as your father? Why did (or didn't) you go into the same kind of work your mother did (or was "trained for")? (2) Which parent influenced you most with respect to your vocational thinking? (3) What do your parents think about your job choice? Do they approve?

It was assumed that a youngster would have special opportunity to form some conception of the particular occupation in which his parents were working along the psychological dimensions with which this study is involved. He presumably would learn

something about the occupation by direct observation of the work or in tangible outcomes, or through reactions of parent to it. He would gain some conception of its potential for varied need satisfaction, its potential for providing income, status, standard of living, the degree to which it made light or extreme demands on time and energy, the degree to and the ways in which it proved frustrating to parent or to family. Although he would be observing the interaction of his parent and his parent's job, this would nonetheless likely influence the youngster's perception of this occupation and would provide a certain, though to be sure vicarious and possibly faulty, opportunity to relate himself to the job, via some such process as identification or role-playing, and to "test" its potential for need satisfaction.

Do college students follow in their parents' footsteps, and if not, why not? Reasons for not going into parents' occupations were classifiable into the following categories:

- (1) Not appropriate for sex or couldn't see self in that role; "concept of teachers that they don't get married."
- (2) Wanted more status, "wanted to go to college, etc.," no future in it; wanted to get further ahead than father. Had more talent. Parents' job insignificant, didn't amount to much.
- (3) Too arduous, long hours, hard work, too much pressure, "a rat race", dangerous, too demanding, dirty, cut throat business.
- (4) Preparation too long.
- (5) Interfere with marriage.
- (6) Wanted to break away, get in something on my own. Didn't like his way of doing things. "Lived teaching" all life and didn't want it. Rebel against parent.
- (7) Doubted or didn't have ability, fear of not coming up to father's standards.
- (8) Away from home too much, too much travel.
- (9) Not interested; rather be _____, didn't want to, disliked certain aspects, too routine, did not appeal, never entered mind.
- (10) Not secure, not enough money.

Half of the foregoing categories were coded in the case of enough of at least one group (15 percent) to be included in Table 10. The data clearly suggest that parental occupation does provide certain role-playing or reality-testing experiences, even though the nature of the data is of a negative sort, i.e., why youngsters do not go into parental occupations. "Not enough status," "doubted

Table 10. Percentage of subjects who gave various reasons for not going into father's or mother's occupation

	WOMEN				MEN			
	Nur. Ed.	Sec Ed.	El. Ed.	Lib. Arts	Sec Ed.	Engr.	Bus Ad.	Lib. Arts
Why not go in father's occupation?								
Father is in same occupation	0	6	5	9	5	10	21	10
Not interested	52	54	57	54	32	41	38	56
Not appropriate for sex	31	29	24	30	2	0	0	0
Wanted more status	6	7	9	7	20	30	17	24
Too arduous, long hours	17	2	22	13	22	17	12	16
Doubted or didn't have ability	2	8	14	21	7	4	9	6
Why not go in mother's occupation?								
Mother is in same occupation	10	23	20	2	10	1	2	2
Not interested	54	55	45	68	27	33	24	32
Not appropriate for sex	2	0	2	2	29	39	35	26
Wanted more status	10	8	19	18	5	3	7	8
N	48	83	112	56	41	69	58	50

ability," "too arduous"--these are meanings our subjects had attached to father's occupations. Although the most frequent responses were general (lack of interest, or not sex appropriate), the desire for greater status among men is noteworthy; among both sexes a desire for a less arduous occupation is mentioned with some frequency. It is noteworthy also that elementary women, reliably more frequently than secondary women, desired a less arduous occupation than their fathers, though they had differed little in fathers' occupational classification or level. Liberal arts women "doubted their ability" with reference to father's occupation, more so than any other group, but reliably more so only when compared to nurses. However, their fathers had, in general, higher-level occupations than did the nursing students.

Liberal arts men (the most heterogeneous group) more frequently expressed general disinterest in father's occupation than did any other group of men, reliably so at the .05 level of confidence. And business administration men were more likely to be interested in their father's occupations, though the difference was reliable only when compared with the secondary education men.

That the education groups, both men and women, should more frequently have mothers in the same occupation is to be expected in view of the greater likelihood that women will be teachers than any other one occupation of interest to our sample. For the same reason, it is to be expected that women who eschew standard women's occupations (mainly those in liberal arts) are less likely to be following in their mothers' footsteps.

While providing insight into the general matter of vocational choice, these data throw no particular light on why a particular subject chose engineering, teaching, or any other choice among our sample. Nor are the facts in Table 11, which relate to the subjects' judgment as to whether father or mother was most influential in his choice and whether parents approve of choice, particularly instructive as to factors leading to differential choices. Mothers tend to be more influential with their daughters, and fathers with their sons. There is a suggestion that women going into non-standard women's occupation (mainly found in liberal arts) are influenced by father to about the same degree as are men and more so than other women. Business administration students, it was previously noted, were more likely to have chosen the same occupation as their fathers, and here they more frequently report that fathers were more influential. These differences (reliable mainly at the .05 level of confidence) seem meaningful, though it must be recognized that approximately this many reliable differences would occur by chance in an array of comparisons such as are possible within this table.

In general, parents of these students approved of their choices of occupation. There is some suggestion that liberal arts women have less parental support than do women more conventional in their choices, and that education men may experience more parental disapproval of their choices. When these groups were compared with other groups of their respective sexes combined, the differences

Table 11. Percentage of subjects (a) who reported mother or father as exerting greater influence on choice and (b) whose parents indicated approval or disapproval of choice.

	WOMEN				MEN			
	Mur. Ed.	Sec Ed.	El. Ed.	Lib. Arts	Sec Ed.	Engr	Bus Ad.	Lib. Arts
<u>Which parent influenced most?</u>								
Neither.....	10	10	6	6	17	16	9	16
Both Equally.....	15	12	12	7	6	8	7	12
Mother.....	52	48	53	39	33	27	16	29
Father.....	25	30	29	48	44	49	69	43
<u>Does your father approve of your choice?</u>								
Yes.....	96	92	98	86	91	97	95	86
No.....	4	3	0	6	9	3	0	4
Neither approves nor disapproves.....	0	5	2	8	0	0	6	10
<u>Does your mother approve of your choice?</u>								
Yes.....	96	93	96	84	92	100	93	94
No.....	4	5	2	4	8	0	0	2
Neither approves nor disapproves.....	0	1	1	13	0	0	7	4
No. of subjects*.....	46	75	110	50	34	61	55	49

* N's represent the smallest base for percentages in the particular column.

were reliable. But even so, 9 out of 10 parents whose sons are in secondary education are perceived by their sons as approving the son's choices.

Part-time Work Experiences. Throughout childhood and adolescence an individual experiments with various life roles, and as Super (1953; 1957, Chap. 6) has noted, such role-playing activities are important factors in the emergence of particular career orientations. The influence of the glamor attached to particular roles has been noted above, as has the influence of parents, in particular knowledge about parental occupation. Part-time work represents another means of role-playing and vocational exploration.

It is common for high-school and college students to work during the summer and other recess periods and during the after-school hours. While the primary motivation for such working may appear to be, or actually be, financial, it is probable that these activities are influential in building positive and negative perceptions about occupations, especially (but not only) if the individual is consciously aware of the exploratory value of these work experiences. Roles (or work experiences) that have proved to be satisfying to the need system of the individual are likely to be positively charged, whereas those which have resulted in frustration or disapproval are likely to become negatively charged. Thus part-time work experiences become a potentially very significant form of reality-testing wherein the individual can "try on" for psychological fit the kind of work in which he participates.

Information was obtained regarding the paid-work experience of the subjects. Table 12 contains certain relevant facts. First paid work experience was at about 12 and a half years of age for boys and about a year later for girls; girls had worked at slightly fewer than three different types of jobs, and boys at somewhat more than three. Girls had worked during about 5 years prior to age 18, boys during about 6 years. In short, once starting to work the typical boy or girl worked to some extent for pay during every year thereafter. Girls had by age 18 worked an average of two full summers, boys an average of about two and a half summers. And all college groups were remarkably alike in these respects; none of the differences (i.e. within each sex) evident in Table 10 were reliable.

The paid-work experiences reported by the subjects of this study were classifiable into the following categories:

- (1) Never worked.
- (2) Baby-sitting (This was singled out as likely the most common experience of girls.)
- (3) Paper route, delivery boy, shoveling snow, mowing lawns (This category is comparable to the preceding one as likely constituting the most common work of younger boys.)

Table 12. Work history of various groups as shown by (a) mean age of first work experience, (b) mean number of different jobs, (c) number of years during which part-time work occurred, and (d) number of summers devoted to full time work.

Group	N	Age First Work Experience		Number of Different Jobs		Number Years Part-time Work		Number Full Summer Work	
		Nn	Var	Nn	Var	Nn	Var	Nn	Var
WOMEN:									
Nursing....	46	13.1	7.2	2.8	1.9	5.8	7.0	2.2	1.9
Sec.Ed.....	83	13.4	6.0	2.9	1.7	5.4	6.3	2.4	3.2
El.Ed.....	108	13.9	7.5	2.5	1.6	4.8	6.5	2.0	2.3
Lib.Arts...	56	13.6	7.2	2.7	1.7	5.0	4.9	2.1	2.5
MEN:									
Sec. Ed...	41	12.5	8.0	3.6	2.6	6.3	7.8	2.6	4.0
Engin.....	69	12.7	5.1	3.2	1.6	6.0	5.2	2.6	4.4
Bus.Ad....	58	12.5	7.7	3.5	2.1	6.3	7.3	2.7	5.7
Lib.Arts..	50	12.4	9.6	3.1	2.9	6.3	9.9	2.2	3.1

Note: None of the comparisons (within sex groups) in this table reveals reliable differences.

Table 13. Percentage of various groups whose histories involved various types of paid-work experience.

Type of Work		WOMEN				MEN			
		Nur. Ed.	Sec Ed.	El. Ed.	Lib. Arts	Sec Ed.	Engr.	Bus Ad.	Lib. Arts
Baby sitting.....	67	49	47	44	3	0	2	4	
Paper route, delivery	0	2	1	2	41	36	39	32	
Service to others....	44	46	50	41	21	6	13	10	
Outdoor labor.....	4	13	3	9	64	70	59	50	
Indoor unskilled									
semi-skilled.....	24	17	10	26	56	68	66	66	
Business contact.....	63	63	59	48	56	30	48	36	
Business detail.....	35	40	46	57	15	15	5	6	
No. of Subjects									
		46	83	107	54	39	66	56	50

- (4) Service to others: teaching, camp counseling, nurses aide, substitute minister.
- (5) Outdoor labor: any outdoor unskilled work such as farm work, construction work, truck driving.
- (6) Indoor skilled or semi-skilled: factory work, pin-setter, janitor, mechanic apprentice (excludes office work, clerical, sales).
- (7) Business contact (work where contact with others in any area of business is involved): any direct selling, sales clerk, cashier, receptionist, waitress, usher, messenger, gas station attendant.
- (8) Business detail (work where there is a minimum contact with others and the emphasis is on the administrative or distributive phases of business): accounting, bookkeeping, secretary, file clerk, typist, switchboard operator.
- (9) Creative (work where original production is involved): writing for newspaper, writing essays, advertising layout.
- (10) Skilled work or labor: printing, plumbing, carpentry.
- (11) Scientific helper: lab technician, any assistant to a scientist in any area.

Table 13 contains the percentage of subjects reporting various types of work experiences. To be classified in a particular category, an individual need only have had some work experience in a job representing that category. Thus a person with scattered experience in five jobs might have been classified in five different categories if his experiences were that diverse.

Although characteristic of Table 13 is the similarity of the groups with respect to experiential backgrounds, differences were clearly apparent. Comparisons within the sex groups total 84, of which 13 involve differences which meet the criterion for the .05 level of significance. More of the nurses had done baby-sitting than any other group of women. Fewer of the elementary education women had engaged in indoor semi- and unskilled work than any other group, but the difference was reliable (at the .05 level) only in the comparison involving liberal arts women. Nurses and elementary education students had more jobs involving business contact than did women in liberal arts or secondary education. Reliably more liberal arts women, on the other hand, had experience in business detail jobs than students in nursing and in secondary education though not reliably more than those in elementary education. Among men, the noteworthy differences involve the lower incidence of outdoor labor in the histories of the liberal arts group compared to engineers and lesser

experience in "business contact" types of jobs among engineering and liberal arts students. It had been hypothesized that secondary education men would have engaged more frequently than other groups in jobs involving service to others, and while differences between percentages were in this direction, the differences were not reliable except in comparison with engineers. The relative low incidence of job of a service-to-others and business contact types was predicted for engineers, and differences in the predicted direction were reliable in comparisons involving secondary education and business administration students. Surprisingly, secondary education students reported most experiences involving business contact.

In total, the analyses relating to work histories, whether age of beginning of, amount or type of experience, emphasize similarities rather than differences among the college groups studied though "type" of experience tended to vary in predicted directions. In evaluating these findings, it must be recognized that the analysis was not with respect to specific types of job choice, but with reference to college of enrollment, that all groups studied were college students, and that job experiences were categorized into relatively broad categories. More detailed analyses with more heterogeneous groups may yield more positive findings of the relevance of work histories to occupational choice, since other investigators (Davidson and Anderson, 1937; Norton, 1952) have found such differences.

The Element of Compromise. If people become oriented toward particular occupations because, consciously or unconsciously, they perceive those occupations as offering the potential of satisfying their needs and "fitting" their personalities and self-concepts, they may change their orientation for one or more of at least three major reasons. First, they may find that the occupation, after all, does not "satisfy" or "fit." Second, they may find that another occupation offers greater satisfaction and better "fit". Or, third, they may find certain obstacles in the path, are unable to attain their original goal, and must therefore develop a substitute goal. It had been hypothesized at the outset of the study that men going into education would have selected this field because, for some reason or other, they could not do what they "really" wanted to do.

First, why did our subjects give up the interest just prior to the current interest? Their answers to this query were classified into the following categories:

- (1) Unspecified loss of interest: does not know, does not remember, passing fancy, grew out of it, just melted away, gave up thinking about it, changed mind, changed when went into service.
- (2) Displaced by stronger interest, specified or unspecified: because interested in something else, etc.

- (3) Negative influence of parent or authority figures: Mother, father, counselor, teacher, etc. disapproved, recommended against or recommended substitute.
- (4) Dissatisfied with preparation or training: College department poor, did not like course work, unhappy with requirements, "felt was wasting my time."
- (5) Inability of occupation to satisfy needs associated with variety and change: work monotonous, dull, not interesting, not challenging.
- (6) Inability of occupation to satisfy needs associated with achievement, status, prestige: field too limited, wanted to go to college.
- (7) Inability of occupation to satisfy needs related to money or economic security: poor pay, job unsure, have to make a living, etc., not enough money in it.
- (8) Inability of occupation to satisfy other needs (beyond above three categories): "alone too much", "wanted to be own boss", wanted something more idealistic, wanted work with children, would be happier working with adult, became fed up with authority; too much conformity; didn't like being tied down.
- (9) Initial interest continuing (Where occupation, such as teaching or engineering, is initial interest and only change is in area of teaching or area of engineering, it was coded as initial interest.)
- (10) Experience offering opportunity to test interest not satisfactory: youth agency work, camp counseling, "discovered job not glamorous." Disliked subject.
- (11) Financial limitations prevented training and/or entry.
- (12) Lack of ability or talent: not adapted; "flunked out", inadequate talent, mental capacity, physical capacity (poor coordination, vision, etc.). Figure, looks (model); didn't have personality traits (patience). Felt field too competitive.
- (13) Too long or arduous training: would have involved amount of training, training program required too much time, too long.
- (14) Interest ended because situational factors created opportunity to pursue other interest: "GI bill meant I could go to college," "had opportunity I didn't expect."
- (15) Psychometric information did not confirm or actually negated previous interest or identified new interest (where such data are mentioned and counselor also mentioned classify here; where only counselor mentioned classify in previous column, as No. 3).

Table 14 gives the figures for those categories that were most prominent in the responses. Apparently the major reason for giving up the previous interest was that something that either was, or promised to be, more satisfying came along. Presumably this is to be interpreted as implying that the new interest is perceived as being (or potentially being) more satisfying than the old. But either lack or perceived lack of ability was mentioned with fair frequency, and about one in ten reported that various experiences had failed to yield the expected satisfaction. Again, students in teacher preparation programs do not stand out. Instead it is the liberal arts women who seem to differ most from the others. They report less frequently that their last interest was simply displaced by a stronger interest, and more frequently that they either lacked or thought they lacked the ability to succeed.

The next table, Table 15, presents the major responses when subjects were asked: "Do you view this (the current choice) as the occupation you would actually like best to enter, of all possible occupations or professions? What would you select if you could do absolutely anything you wanted to do, with no restrictions? Why didn't you go into this?" It was thought that this line of questioning would yield evidences not only of compromise, but also reasons for the compromise, i.e., perceived blocks in the way of achieving goals. Responses were classified into the following categories.

- (1) Would select the same.
- (2) Doubted ability, did not have ability or other requisite traits.
- (3) Wanted to marry.
- (4) Didn't have money for training or establishment of business.
- (5) Didn't have opportunity (not otherwise specified)
- (6) Not interested until lately, or interest not strong enough.
- (7) Too unrealistic, too far out of reach, not practical.
- (8) Pay not good enough.
- (9) Too demanding, can't have other interests.
- (10) Insecure, not stable enough.

It is interesting that the majority of men would select the same occupation as their present choice, with the education group reporting this with about the same frequency as the other groups. Nor did the men differ much in their reasons for not pursuing their "greatest" desire. Among the reasons for not doing so were lack of ability and lack of money. The data suggest that women have more conflict, the majority reporting that they would select another area if they could do anything they wanted to. Prospective nurses seemed quite satisfied with their choices; prospective secondary school teachers least satisfied. The question of ability appeared to arise more frequently than other reasons, about one out of four giving this as a reason. As in the case of men, no striking difference between groups appears in reasons for not pursuing that which they would most like to do.

Table 14. Percentage of subjects who gave selected reasons for discontinuing interest immediately preceding current interest.

	WHEN				HOW			
	Mar.	Sec. Ed.	Hi. Ed.	Lib. Arts	Sec. Ed.	Engr.	Bus. Ad.	Lib. Arts
Initial interest continuing.....	13	9	5	4	5	19	5	2
Unspecified loss of interest.....	8	11	12	11	8	6	16	13
Displaced by stronger interest.....	38	30	19	7	23	22	16	31
Dissatisfied with preparation and training.....	0	6	8	18	3	0	0	0
Experience not satisfying.....	2	10	14	13	8	2	11	19
Lack of ability.....	10	13	21	31	23	13	16	27
No. of Subjects.....	48	80	112	55	39	63	56	48

Table 15. Percentage of subjects giving various answers to questions: "What (occupation) would you select if you could do absolutely anything you wanted to do, with no restriction? Why didn't you go into this?"

	WOMEN				MEN			
	Sur.	Sec. Ed.	Hi. Ed.	Lib. Arts	Sec. Ed.	Engr.	Bus. Ad.	Lib. Arts
Would select same.....	73	39	46	45	59	67	59	58
Select other, but doubts ability.....	17	24	30	29	15	15	17	22
Select other but wanted to marry.....	8	16	8	2	2	4	5	0
Select other but didn't have enough money....	8	7	5	7	15	7	16	12
No. of Subjects.....	48	83	112	56	41	69	58	50

Table 16. Percentage of various groups providing various types of evidence suggesting doubt regarding present choice.

	WOMEN				MEN			
	Sur.	Sec. Ed.	Hi. Ed.	Lib. Arts	Sec. Ed.	Engr.	Bus. Ad.	Lib. Arts
Not yet "sure".....	10	23	11	38	15	15	16	38
Haven't enough information.....	10	21	9	44	13	16	28	40
Has doubts regarding: Real interest in field.....	15	23	14	25	5	12	17	26
Ability to succeed.....	19	24	30	48	7	31	24	42
Liking for way of life.....	15	31	15	19	5	10	22	20
Opportunity for job.....	0	14	7	42	7	2	16	20
Money for training.....	9	6	5	20	7	9	3	38
No. of Subjects.....	48	83	112	56	41	69	58	50

Table 16 provides additional information relating to compromise, not compromise which has already occurred, but rather suggesting that potential compromise or need for further reality testing was currently prominent in our respondent's thinking about their vocational choices. In this table are presented the proportion who indicated they were not yet "sure" of their choice, those who indicated that they did not feel that they yet had enough information about their choice, and those who expressed some doubts along particular lines when they were asked specifically if they had doubts about their "real interest in the field," "ability to succeed," etc. The liberal arts students again appear as the "problem group," as is, perhaps, to be expected because of the relative lack of vocational focus in the liberal arts program, and because (among women, at least) here are to be found those who are selecting relatively unconventional occupations. On almost every score, liberal arts women and men stand out as the uncertain group, lacking in information, and have numerous doubts about their choice. The greater frequency of compromise in the histories of prospective secondary school teachers (women) is suggested in the relative prominence of their doubts about "liking the way of life" characterizing this field. They expressed this doubt reliably more frequently (at the .05 level of confidence) than did prospective nurses and prospective elementary school teachers. Prospective men teachers have notably fewer doubts than do women teachers (particularly those in secondary education) which is in a way surprising. Does lack of doubt suggest a neat meshing of personality, needs, and occupation, or does this suggest a lack of concern with such matters, a lack of career motivation and of serious thinking along such lines?

In total, the evidence suggests that in the development of a vocational choice some adjustment is not infrequently required when preliminary interests don't "prove out" in experience, or when personal (e.g., ability) or external (e.g., money) factors block progress toward the particular goal. Prospective secondary teachers (women) seem to be forced more frequently than others to modify their objectives, while prospective men teachers seem almost too lacking in need to compromise.

Orientation Toward the Future

If past history reveals information about degree of involvement in career, such involvement should be even more evident when the inquiry is directed toward plans and expectations regarding the future. In general, we have hypothesized that male prospective teachers have relatively low involvement with career and that women secondary teachers are more involved than are elementary teachers, but not so much so as those women interested in non-standard-women's occupations. Several lines of evidence bear on this hypothesis.

In Table 17 are presented facts regarding expressed degree of interest in advancement and the age by which our subjects expected to achieve their goals. They were asked directly: "To what degree are you interested in advancement after starting work? Would you say: Not at all, a little, to a fair degree, very much?" These

Table 17. Mean rating (on 4-point scale) of degree of interest in advancement and mean age at which goal is expected to be achieved.

Group	N	<u>Degree interested in advancement</u>		<u>Age achievement of goals expected</u>	
		Mn	Var	Mn	Var
WOMEN:					
Nursing.....	46	2.9	.83	28.3	31.7
Sec. Ed.....	60	2.9	.76	29.8	57.7
El. Ed.....	110	2.6	.91	27.3	33.8
Lib.Arts.....	42	3.3	.55	32.9	80.1
MEN:					
Sec. Ed.....	40	3.6	.39	37.9	60.2
Engin.....	56	3.8	.21	41.4	45.6
Bus. Ad.....	58	3.9	.13	41.4	67.1
Lib. Arts.....	44	3.6	.44	44.1	58.3

LEVELS OF SIGNIFICANCE OF DIFFERENCES

WOMEN:		
Nursing vs. Sec. Ed.....	NS	NS
Nursing vs. El. Ed.....	NS	NS
Nursing vs. Lib. Arts.....	.05	.01
Sec. Ed. vs. El. Ed.....	.01	.05
Sec. Ed. vs. Lib.Arts.....	.05	NS
El.Ed. vs. Lib. Arts.....	.01	.01
MEN:		
Sec. Ed. vs. Eng.....	NS	.05
Sec. Ed. vs. Bus. Ad.....	.05	NS
Sec. Ed. vs. Lib.Arts.....	NS	.01
Eng. vs. Bus. Ad.....	NS	NS
Eng. vs. Lib. Arts.....	NS	NS
Bus. Ad vs. Lib.Arts.....	.05	NS

categories were assigned scale values of 1, 2, 3, and 4 respectively. In the course of inquiring regarding their eventual goals, the subjects were asked at what age they expected to achieve their goals. It will be noted in the table that, among women, prospective secondary school teachers are reliably more interested in advancement than are prospective elementary school teachers and project their careers reliably farther into the future, by some 2 1/2 years on the average. But the liberal arts group (containing non-standard women's choices) report reliably greater interest in advancement than any other group of women, and project their careers a greater distance into the future than does any other group.

The men are much more closely bunched with respect to rated interest in advancement, with secondary education and liberal arts students having lowest mean ratings and business administration the highest. The differences between business administration students and the two other groups just mentioned was reliable. With respect to degree to which career advancement is projected into the future, the secondary education students expect to achieve their goals on an average between 3.5 and 6.2 years earlier than the others, but only in the comparisons involving engineering and liberal arts students is the difference reliable.

The evidence in Table 17 thus supports the general hypothesis relating to saliency of career stated in the introductory paragraph to this section.

Table 18 describes the future plans and eventual goals reported by the subjects of the study. The question was asked: "Let's look now at what you think or hope lies ahead. Can you tell me something about your plans and hopes for the future?" The responses were coded into the following categories:

- (1) Mention of military service.
- (2) Mention of marriage (other than that classified under #4 below)
- (3) Mention of further education beyond BA.
- (4) Work-marry-work part-time; work after children grow up (or any marriage-work combination or alternation)
- (5) Reference to first job (no reference to other jobs, or development in career), "get a good job".
- (6) First job with advancement possibilities, general experience.
- (7) Evidence of career plans including advancement. "Teach, do advanced work, principalship"; "Good job-training program in management." Do "this", get experience, do "this".
- (8) Hopes to become successful and well established, not developed beyond this.
- (9) Hopes to make good deal of money.

A number of interesting differences appear in the top portion of Table 18 where are recorded the percentage of subjects whose responses could be characterized in the above ways. Among women the chief contrast appears to be between nursing and liberal arts

Table 18. Percentage of various groups reporting various types of future plans.

	WOMEN				MEN			
	Mur. Ed.	Sec Ed.	El. Ed.	Lib. Arts	Sec Ed.	Engr.	Bus Ad.	Lib. Arts
<u>Can you tell some- thing about future plans?</u>								
Mention of military service	0	0	0	0	20	15	31	36
Marriage	8	19	23	29	2	7	7	10
Work-marriage-work	56	41	35	16	15	0	0	4
Further education	2	27	18	34	32	13	0	50
Reference to 1st job, no mention of advancement	17	35	50	48	49	32	22	36
Evidence of career plans	6	10	3	9	24	26	53	14
<u>What would you say is your eventual goal?</u>								
Defined in terms of family	17	11	6	9	0	0	2	8
Gen'l goals (advancement)	4	6	6	27	12	16	10	18
Specific goals (advancement)	31	17	7	29	44	55	64	38
"Doing a good job"	27	53	58	14	22	6	0	16
No. of Subjects	48	83	112	56	41	69	58	50

students. When liberal arts women mention marriage, it is less likely to be in combination with or alternating with work; they mention further education among their plans, and reference to work is more likely to be made in terms of first job, with no mention of advancement. Nursing students are at the other extreme of our four groups in all of these respects, and reliably different from the liberal arts students. Among men, we note education and liberal arts students (the latter especially) making more frequent reference to further education. Education students more often mention first job without reference to advancement; and business administration students more frequently give responses evidencing career plans or at least perceive of their occupational futures as involving a related sequence. Most of the comparisons involving other groups of men with respect to these characteristics are reliable.

The lower portion of the table under discussion relates to eventual goal: "What would you say is your eventual goal, the goal you would like to achieve in your career?" The responses were described in terms of the following categories:

- (1) Defined in terms of family: married, have children, able to provide kids with education (if vocational reference included, code vocation - do not put in this category)
- (2) Defined in terms of money: "make lots"
- (3) Defined in terms of economic or job security: "security in position"
- (4) Defined in general terms, but clearly advancement. "Job with a lot of responsibility - go as high as I can."
- (5) Defined in terms of specific type of position or goal, but clearly advancement: "Have own company in light plane field;" "become an engineering consultant;" "business executive;" "supervisory position;" specialization in some field - pediatrics from general nursing.
- (6) Defined in terms of doing good job or job one wants, no or little advancement indicated: minister - "leave the world better than I found it"; be successful in circuit design; "position of being needed"; success in gaining respect in profession; "getting to be a good teacher"; "help children".
- (7) No goal evident, stated as no goal, "don't know", "teaching"
- (8) Advancement disavowed: not interested in advancement, etc.

Inspection of Table 18 reveals certain seeming inconsistencies between the data relating to "future plans" and to eventual goals. Liberal arts women, when talking of "future" plans stress further education, marriage, and getting the first job, without reference to advancement, but an interest in advancement is clearly evident

in their replies regarding eventual goals. This seeming discrepancy illustrates how apparently very similar questions may tap different matters, inquiry about "future plans" having elicited little relating to career progress or advancement as such. Inquiry as to "eventual goals" elicited replies indicating a relatively high incidence of both general and specific goals implying advancement on the part of the liberal arts women, but mainly specific goals involving advancement in the case of nurses. Women prospective teachers seemed relatively little interested in advancement, but stressed what seemed essentially to mean "doing a good job" more than did the other groups. In these data, although the secondary education group gave slightly more indication than did the elementary group of interest in advancement, the difference was reliable only at the .05 level of confidence in case of "specific goals". This specific difference was calculated; the application of the "general yardstick" described earlier (the standard error of the typical difference being 7.8) reveals that other differences mentioned in this paragraph are reliable.

Among men, two differences are noteworthy. First, engineers and (especially) business administration students express more specific goals involving advancement. Second, education students, more than any other group express as their eventual goal that of "doing a good job." Here again the lesser career orientation on the part of education men is evident, but in these particular comparisons (i.e., lower portion of Table 18) they are similar to liberal arts men.

Also during the interview we asked: "What kinds of opportunities for advancement do you see in this field (subject's own choice) for you?" Although the largest category of responses involved mention of specific types or forms of advancement (salary, further education, specific advanced position, become executive, head nurse, etc.) the focus of our analysis was upon the extent of opportunity as expressed spontaneously, rather than its nature. The following categories were utilized for classifying responses:

- (1) Interest in advancement disavowed: "not looking for advancement", "don't care; want to enjoy job and get along."
- (2) None: "none", "don't know," "not sure," "not for me."
- (3) Poor: "little", "few", "not much", "poor".
- (4) Fair opportunity: "pretty good", "fair"
- (5) Good or very good: "opportunities should be good", "quite a bit", "many," "good".
- (6) Excellent: "excellent", "all kinds of opportunity", "unlimited", "great".

As will be noted in Table 19, engineering students particularly were impressed with the opportunities in their fields; men in secondary education were least impressed with opportunities; and men were more impressed than women.

The bottom portion of the table gives the subjects' estimates of their "chances of reaching their goals." Prospective men

Table 19. Percentage of the several groups having various perceptions of future opportunity and expectation of success in reaching own goal.

	WOMEN				MEN			
	Nur.	Sec. Ed.	El. Ed.	Lib. Arts	Sec. Ed.	Engr.	Bus. Lib. Ad.	Lib. Arts
What opportunities do you see ahead for you?								
Specified kind of advancement	65	49	38	33	56	32	47	29
Interest in advancement disavowed	8	13	15	0	5	1	0	8
None, doesn't know, not sure	15	19	21	22	7	3	2	12
Poor, little, few	2	7	16	17	5	1	3	0
Fair opportunity	2	6	4	9	5	7	0	8
Good or very good	8	1	6	7	12	22	28	25
Excellent	0	4	1	11	10	33	21	18
What are your chances of reaching goal?								
Don't know	3	4	4	8	3	13	4	20
Poor or very poor	5	5	2	17	6	5	6	12
Fair	39	30	45	52	34	45	38	41
Good	31	33	31	10	26	20	38	18
Excellent	23	28	18	14	31	17	13	8
No. of Subjects	39	83	102	54	35	69	55	49

teachers were most confident (but, it will be remembered, they showed less evidence of having significant goals); liberal arts men students evidenced least confidence. Engineers, though they had emphasized the outstanding opportunities they thought existed in their field, were somewhat less confident of their ability to capitalize them and to achieve their goals, i.e., fewer thought their chances were "good" or "excellent" than had thought the opportunities were "good" or "excellent". The same tended to be true for liberal arts men also. Among women, confidence of achieving eventual goals seemed generally high for those going into the conventional women's occupations (half or more of the teaching and nursing group rated their chances as good or excellent), but the liberal arts group was notably less confident, presumably because such students held higher goals or were less sure as to what their objectives were.

One further bit of information relates to future orientation. At one point in the interview the question was asked: "Would you say it is now too late to change your mind about what you want to do as your life work?...How much more time would you say you have ahead of you yet before you have to make a clear and definite decision about your occupation, that is, until you would view it extremely unwise to change your occupation?" Subjects were asked to put the latter in terms of an age limit. Table 20 contains the relevant data. Where it was considered there was still time left and an age limit (other than "never") was specified, the modal age at which students thought they should reach a firm decision was the 20-24 age interval, except for male business administration and liberal arts students (who moved the limit one semi-decade higher). It is noteworthy (1) that especially in areas where the curriculum is specified (nursing, engineering) it was more frequently thought that it is now too late, and (2) that among prospective teachers of both sexes about a third said that it is never too late. In the case of males, prospective teachers gave this answer more frequently than any other group and in two of the three comparisons the difference was reliable. Again, the question is raised as to whether this finding implies a lack of ego-involvement in career on the part of male teachers. Are they so little involved that for them it really makes little difference if they ever reach a firm decision?

Some data collected in another phase of the study (the personal data inventory) are relevant here. Subjects were asked to rate the importance to themselves personally of various purposes or values in a college education, one of which purposes related to vocational training. (Exact wording: "Provide vocational training: develop skills, techniques, knowledge and understanding directly related to your career."). Rating was on a 5-point scale, with "5" being extremely important. Among women, 81 percent of the nurses assigned a rating of "5" as did 53 percent of those selecting secondary education, 62 percent selecting elementary education, but only 35 percent of those selecting non-standard women's occupations. Among men, 62 percent of those selecting engineering, 71 percent of those selecting secondary education, but only 43 percent of all other men (i.e., exclusive of engineering and

Table 20. Percentage of the several groups who gave selected answers to questions regarding time left for reaching a definite vocational choice.

	Too Late	Now	Modal Age*	Never too Late
	(%)	(%)		(%)
WOMEN:				
Nursing.....	27	20-24	12	
Secondary Education.....	13	20-24	30	
Elementary Education.....	17	20-24	35	
Liberal Arts.....	14	20-24	27	
MEN:				
Secondary Education.....	5	20-24	32	
Engineering.....	33	20-24	16	
Business Administration...	14	25-29	24	
Liberal Arts.....	8	25-29	10	

*Modal age is for those who specified an age, thus excluding individuals who thought there was still time, but gave no age, who thought it was now too late, or who thought it was never too late.

(secondary education) assigned a rating of "5". Thus, although a variety of evidence suggests that those in teacher preparation programs are less interested than others in career, as such, they nonetheless value a college education as providing vocational training. These findings are not necessarily inconsistent. One individual who values vocational training may do so as a step toward a career; another as a step toward a job. It may well be that teachers are more likely to fall in the latter category in the sense that they are oriented toward a type of work that they will enjoy, but which will not necessarily show developments that ordinarily characterize careers.

who thought there was still time, but gave no age, thus excluding individuals too late, or who thought it was never too late.

IV. ACHIEVEMENT MOTIVATION AS RELATED TO VOCATIONAL CHOICE

The general hypothesis with which the phase of the study reported in the present section began is that people selecting different occupations can be differentiated in terms of their achievement needs. But, since much is already known regarding the status accorded various occupations in the American culture, certain specific predictions seemed also possible. It was hypothesized that occupations such as engineering and law, for men, and "non-standard" women's occupations, for women, would tend to attract high achievement need individuals whereas the profession of public school teaching would attract individuals with lower achievement needs and that individuals selecting secondary teaching would have higher achievement needs than those selecting elementary teaching. Certain relevant data have been presented in the previous section, but here consideration will be mainly in terms of measured needs.

The Problem of Measurement

Various devices have been presented for the purpose of measuring needs for achievement. Much of the recent research has been conducted with McClelland's projective measure (McClelland, 1953). Though some positive results have been obtained, available research raises questions as to both the reliability and validity of this method. The "Occupational Level" score of the Strong Vocational Interest Blank has also been utilized by investigators as a measure of "drive," and both positive and negative evidence has been obtained regarding its validity for this purpose. More recently the achievement need measure contained in Edward's Personal Preference Schedule has become available. Though the test appears promising, at the time the present study was initiated no validity data had become available. Subsequent publications have reported low (essentially zero) correlations between the Edwards and the McClelland scales.

Because of the importance of predictions involving the achievement need to the hypotheses underlying this study, all three measures were employed. Information relating to the relationships among these measures and the relationships of each of the measures to other types of data suggestive of their validity will be helpful in interpreting the facts presented later in the chapter.

One hundred twenty-three men responded to all three measures, and some 215 women responded to both the McClelland test and to the Edwards' scale. (The "Occupational Level" key has not been developed for the women's form of the Strong Vocational Interest Blank.) The inter-relationships among the tests were negligible, the highest correlation coefficient being only .12, a value not significantly different from zero, and the other correlations ranging from -.05 to .03.

Obviously these tests are not measuring the same thing. It was thought that other types of information obtained in the study might provide some basis for judgment as to the relative validity of the

tests. For example, subjects had been asked to indicate their income expectations one and ten years after college, and to indicate what they hoped to be doing at age 30 and at age 45. Responses to the latter question had been categorized (in part) according to mention of expected advancement. They had also been asked to indicate whether satisfaction on their part would require occupational achievement a great deal higher, somewhat higher, or on about the same level with their fathers. In addition, subjects were asked to rate the degree to which they considered various objectives of a college education important, one such objective being to "provide vocational training; develop skills, techniques, knowledge, and understanding directly related to your career." Women were asked to check one of a series of statements describing their attitude toward a career. One possible response was: "Whether married or single, I plan to pursue a career to the same degree that any man might."

It seems reasonable to expect that a scale measuring achievement needs of the type that function in careers would yield scores correlated with answers to questions such as the foregoing. Accordingly the top and bottom 25 per cent of the groups on which the correlations were computed were compared with respect to the frequency with which they indicated needs for achievement in the foregoing respects. The Edwards discriminated at an .05 level or better in 8 out of 15 comparisons whereas the McClelland and OL scales discriminated only once each. (In one additional instance the McClelland scale differentiated reliably but in the wrong direction.) When the reliability of the differences between the observed differences in the instance of the three scales was checked, the Edwards scale was found to differentiate reliably better than the McClelland in 6 comparisons and reliably better than the OL scale in two. In no instance did the McClelland scale differentiate better than either of the other two scales, and in two instances the OL was superior to the McClelland scale.

Thus the validity of the Edward's Scale, and its superiority over the other two measures, appears to receive some confirmation. This is fortunate because the Edward's Scale had been most extensively used in the study; it yields a variety of need measures and is a group test suitable for both sexes and requiring no special equipment.

Edwards' Achievement Need Results for Groups Selecting Various Occupations

It was our prediction that prospective engineers and lawyers would rank high in achievement needs; that male prospective teachers would rank lower. Among women, it was anticipated that women who had selected such occupations as law, journalism, merchandizing, engineering, and other "non-standard women's occupations" would have higher achievement needs than those going into nursing or education (standard women's occupations) and that those going into elementary education would be lower in achievement need than would those going into secondary education.

Table 21 contains the essential results, the means and variances for the various groups, indicating the degree to which these predictions were confirmed. The F's from analysis of variance indicated that the hypothesis that these groups are random samples of the same population can be rejected at the .001 level of confidence. In other words, women subjects choosing various occupations differ in their achievement needs, as do men choosing various occupations.

An inspection of the means in the table indicate that the various occupational choice groups tend to rank in predicted order.. Among men prospective lawyers and engineers are high; secondary school teachers low. Among women prospective elementary school teachers ranked lowest; those going into non-standard women's occupations ranked highest. How reliable are the differences among the various groups? The results of t tests expressed in terms of percent level of significance are summarized in Table 22. The figures above the diagonal relate to contrasts between women's groups numbered the same as in Table 21, and those below the diagonal compare men's groups numbered also to correspond to group numbers designated in Table 21.

Inspection of the table reveals that women choosing non-standard women's occupations (Group 9 in the table) have reliably higher achievement needs as measured by the Edward's scale than do any of the other groups except that of "no choice". The "no choice" group while not differing reliably from nurses, secondary education women, and non-standard women's occupation, is reliably higher in achievement need than the several elementary education subgroups. With the exception of women mathematics-science teachers (where the N of 17 was lowest) all comparisons between secondary and elementary teachers reflected differences showing higher achievement needs on the part of prospective secondary teachers. All of these differences are in the predicted directions.

One purpose of the study was to compare individuals selecting various areas of teaching. The four subgroups into which women secondary education students were grouped had mean scores on the Edwards' achievement need measure that were not significantly different one from the other.

In the case of men, the subgroup samples were smaller than was true of women, but nonetheless the findings on the whole confirmed the predictions. Thus prospective engineers have reliably higher achievement needs, as measured, than do prospective physical education teachers and those prospective teachers selecting fields other than art and music. They are also reliably higher in this respect than five other of the occupational groups. Prospective lawyers are reliably higher than the same groups, but also are reliably higher than the "medicine and science research" group, a group which was not reliably different from prospective engineers. It is to be regretted that a sufficiently large sample of prospective MD's was not available to warrant separate comparisons. The three subgroups of prospective teachers did not differ reliably.

Table 21. Means and Variances of Scores on the Achievement Need Scale of the Edwards Personal Preference Schedule for the Various Occupational Choice Groups.

Group	N	Mean	Variance
WOMEN (by occupation):			
1.Nursing.....	48	12.7	15.3
2.Math-Science Teaching.....	17	12.5	24.0
3.English-Social Science Tchg.	36	13.6	19.5
4.Art-Music Teaching.....	41	13.2	15.9
5.Other Secondary Teaching....	29	12.5	23.4
6.Nursery-Kindergarten Tchg...	15	11.0	5.5
7.El. Sp.Ed. Tchg.....	27	10.6	13.2
8.Gen.El.Tchg.....	101	11.5	15.3
9.Non-Stand. Women's Occup....	77	15.8	27.2
10.No Choice.....	24	14.8	29.2
Anal.of Var. (F,p)		6.4 (001)	
MEN (by occupation):			
1.Engineering.....	60	18.0	12.1
2.Physical Ed.Tchg.....	11	15.1	8.8
3.Art-Music Tchg.....	10	16.6	15.2
4.Other Sec. Tchg.....	19	13.7	19.8
5.Medicine and Sci. Research.	23	16.4	17.9
6.Law.....	24	19.2	9.7
7.Acct. and CPA.....	12	17.9	13.7
8.Sales.....	17	14.6	14.4
9.Misc. Bus. and Adv.....	17	14.6	19.8
10.Ind. Pers. and Prod. Man...	18	15.2	11.7
11.Not Elsewhere classified...	19	15.5	8.6
12.No Choice.....	43	15.6	18.5
Anal. of Var. (F,p)		4.3 (001)	

Table 22. Results of t tests (expressed in per cent level of confidence) of differences between means reported in the preceding table (Table 21) of achievement need scores as measured by the Edwards Scale. Because of space limitations numbers are used to identify groups being contrasted; the groups referred to may be identified in Table 21. Values above the diagonal refer to women's groups, below to men's.

Groups											
1	2	3	4	5	6	7	8	9	10	11	
WOMEN											
1		NS	NS	NS	NS	NS	05	NS	001	NS	..
2	02		NS	NS	NS	NS	NS	NS	05	NS	..
3	NS	NS		NS	NS	05	01	01	05	NS	..
4	001	NS	NS		NS	NS	01	05	01	NS	..
5	NS	NS	NS	NS		NS	NS	NS	001	NS	..
6	NS	01	NS	001	02		NS	NS	01	02	..
7	NS	NS	NS	02	NS	NS		NS	001	01	..
8	001	NS	NS	NS	NS	001	05		001	01	..
9	01	NS	NS	NS	NS	001	NS	NS		NS	..
10	01	NS	NS	NS	NS	001	NS	NS	NS		..
11	01	NS	NS	NS	NS	01	05	NS	NS	NS	..
12	01	NS	NS	NS	NS	01	NS	NS	NS	NS	NS
MEN											

To provide some perspective to these findings the level of achievement needs of selected groups from the study may be compared with Edwards normative data. The highest female group (non-standard women's occupations) is somewhat more than a full standard deviation above the lowest group (elementary special education), and a little more than a half deviation above the mean of the larger sample of college students comprising the test normative groups. Among males almost one and a half standard deviations separate the lowest group (secondary education, excluding art, music, and physical education) which is one-half standard deviation below the mean of the normative groups and the highest group (law) which is almost a full standard deviation above the test mean. The various occupational choice groups among Syracuse University students cluster around the mean of the national sample on which the norms of the test were based. Thus as regards achievement motivation, at least, Syracuse students seem reasonably representative of American college students.

Contrasts of Various College Groups on the Several Achievement Measures

As was pointed out earlier, "college groups" in contrast to the occupational choice groups contain individuals who have made no choice, who have rated their choice quite low (and thus were eliminated from the occupational subgroups), or who, indeed, may have chosen an occupation for which the college in which he enrolled does not prepare. Thus a male in education may actually have chosen law. It happens, despite their heterogeneity, that only in the college groups were enough subjects available on many of the measures to warrant comparison, though N's were often small even so. This was true of comparisons involving the Strong Occupational Level Score and the McClelland Need Achievement Score.

In Table 23, the means and variances for the various achievement need measures for the several college groups are presented. Analysis of variance of the Edwards' scale results yielded F's significant at the .001 level for both men and women indicating that these college groups cannot be assumed to be random samples of the same populations. The college groups of women are seen to vary in a fashion to be expected in view of the results set forth in Table 21 for the various occupational groups. In the case of men, analysis of variance of the McClelland Achievement Need Score yielded an F significant at the .05 level of confidence, but the mean scores were not ordered in the same fashion as in the case of the Edwards Scale. It may well be that reflected in this difference between McClelland and Edwards' Scores is a difference in the type of achievement need being measured, in the case of engineers an orientation toward things and problems and mastery over them, in the case of business administration toward people and competitiveness with people.

The Strong Occupational Level Scores for men may be assumed to represent random samples from the same population, the analysis of variance yielding an F which fell short of that required for

Table 23. Contrasts of the Various College Groups of Men and Women with Respect to Various Measures of Achievement Needs: Means and Variances.

College Group	Edwards Achievement Need			McClelland Achievement Need*			Strong OL Score		
	N	Mn	Var.	N	Mn	Var.	N	Mn	Var.
WOMEN:									
Nursing.....	49	12.8	15.6	..	...	...	..	...	...
Sec.Ed.....	151	13.0	20.3	57	11.6	12.8	..	...	...
El.Ed.....	199	11.6	14.3	102	11.3	18.2	..	...	...
Lib.Arts.....	100	16.2	27.8	46	11.7	13.8	..	...	...
MEN:									
Sec.Ed.....	61	14.7	15.0	17	10.2	13.1	27	50.3	51.5
Eng.....	76	17.8	11.5	16	10.1	6.5	26	50.3	28.7
Bus.Ad.....	83	15.6	16.0	40	12.8	20.0	60	52.1	35.2
Lib.Arts.....	131	16.6	16.8	40	12.3	15.1	75	53.3	44.3

Analysis of Variance

WOMEN: F	19.2			
Level of Sig.	.001	<	...	...
MEN: F	8.4	2.8	2.3	
Level of Sig.	.001	.05	.10	

*McClelland scores are actual score plus 5 to avoid negative values.

...the various occupational groups did indeed come from somewhat different sources. For this reason and since little in the way of meaningful differences appeared in the analysis, the main data are not presented. However, it was clear that many Syracuse University men, upward occupational mobility is very much desired. Slightly more than one-half would like to achieve a greater goal more than did their fathers. Thirty-five percent would like to achieve somewhat more. And only 13 percent indicated that they would be satisfied to achieve on the same or a lower level. In the case of women, desire for personal achievement was less. Only 15 percent desired to achieve "a great deal more than their fathers, and another 27 percent would like somewhat higher achievement. Over half indicated they would be satisfied with achievement on the same level or lower. But as was emphasized earlier women were from higher level backgrounds than were men. The question regarding hopes for husband's achievement compared to the girl's own father, it she married, was added because it was thought that women's achievement needs might, perhaps, be more strongly revealed through their aspirations for their husbands since

rejection of the null hypothesis at the .05 level of confidence. An Occupational Level key is not available for the women's form of the Strong and, as can be seen in the table, the McClelland scale failed to differentiate among women enrolled in secondary education, elementary education and liberal arts.

Other Evidence of the Achievement Motivation
of Those Choosing Various Occupations

In the course of the personal information questionnaire designed for the study, as in the course of the interview, data from which has already been presented, certain other data were collected which might be expected to reveal the degree to which high achievement needs were present; quite aside from evidence provided by the more systematic measures. For example, as noted above, both men and women were asked: "Regarding your own long-term plans and goals compared with your father's accomplishments, would you say that personally....(check one)" The alternatives offered varied from "like to achieve a great deal more" to would be satisfied if "achieved a great deal less." In the first form of the questionnaire which was utilized at the outset of the study only these questions were asked. A revised form was quickly prepared containing the following addition: "FOR WOMEN ONLY: If you marry, how would you like your husband to achieve compared to your father?" The first choice, "You would like him to achieve a great deal more than your father did occupationally," indicates the nature of the changes made in the various alternative responses.

The degree of achievement desired compared to father's occupation is influenced by the level of father's occupation (e.g. low parental origin gives not only much more room but presumably--at least for those motivated to go to college--a greater reason for desire to achieve more), and it will be recalled that those making up the various occupational choice groups did indeed come from somewhat different origins. For this reason and since little in the way of meaningful differences appeared in the analysis, the basic data are not presented. However, it was clear that among Syracuse University men, upward occupational mobility is very much desired. Slightly more than one-half would like to achieve a great deal more than did their fathers. Thirty-five percent would like to achieve somewhat more. And only 13 percent indicated that they would be satisfied to achieve on the same or a lower level. In the case of women, desire for personal achievement was less. Only 16 percent desired to achieve "a great deal more than their fathers, and another 27 percent would like somewhat higher achievement. Over half indicated they would be satisfied with achievement on the same level or lower. But as was emphasized earlier women were from higher level backgrounds than were men. The question regarding hopes for husband's achievement compared to the girl's own father, if she married, was added because it was thought that women's achievement needs might, perhaps, be more sharply revealed through their aspirations for their husbands since

for women an occupational role seems definitely subordinate. While the data indicate that women do, indeed, have higher aspirations for their husbands than for themselves, little in the way of difference appeared among the women groups.

An additional line of evidence regarding achievement motivation was obtained by the question: "What is your long-term goal? What would you like most to be doing...at age 30? Responses to these questions were entirely "free," but answers were categorized to permit analysis regarding, among other things, whether there was emphasis upon advancement. Responses for "at age 30" were categorized into seven classes, two of which were "working; no indication of advancement" and "working with indication of advancement." Responses for "At age 45" were classified into nine categories, of which the following four related to advancement: "Advancement indicated by both age 30 and 45;" "Advancement indicated at age 30 but not at age 45;" "No advancement indicated at either 30 or 45," and "No advancement indicated by 30 but advancement indicated at 45."

Table 24 presents the percentage of the various choice groups who responded in the several ways indicated above. Again the secondary role of occupation in lives of women is indicated. In fact, their responses falling in the categories having to do with occupational advancement were so few as to make comparisons among the occupational choice groups meaningless. Not so with men. Of 276 who answered the question, all but 39 gave responses that related to working. Of the total 58 per cent indicated hoped for advancement. The percentage anticipating advancement varied from choice group to group, with prospective lawyers (who had the highest mean need achievement scores of the several groups) expressing this expectation most frequently, but the numbers of cases are so small in any one group that the percentages are quite unstable.

When the secondary education group is compared to the rest of the men, in the instance of the "by 45" data, 29 per cent of the prospective teachers and 44 percent of "other" men (the total group less the prospective teachers) expressed this desire. The difference is not significant with N's of 41 and 235 for teachers and non-teachers respectively. When the last two columns of Table 24 are combined (Advancement at 45, but not at 30; and advancement at both 45 and 30), the difference is about the same, and non-significant. Forty-four percent of the prospective male teachers and 54 percent of the rest of the males mentioned advancement by 45. Comparison of prospective teachers expression of desire for advancement by age 30 was not reliably different in frequency of occurrence from the rest of the sample.

Table 24. Percentage of various groups of subjects who reported types of goals indicating varying degrees of interest in advancement to be reached (a) by age 30, and (b) by age 45.

	N	By Age 30:		By age 45:			
		No Adv.	Adv.	No Adv. 30, 45	Adv. 30, 45	No Adv. 30, and 45	Adv. 30 and 45
WOMEN*							
Nursing.....	48	0	0	21	0	2	0
Sec. Ed.....	123	9	6	12	7	12	5
El. Ed.....	146	4	2	13	1	7	0
NSWO.....	79	6	11	10	6	8	5
No Choice.....	24	4	4	4	0	8	8
MEN:							
Engineering.....	61	28	61	8	15	21	44
Sec. Ed.....	41	34	56	20	24	15	29
Med. Sci.Res.....	23	43	48	13	17	26	26
Law.....	24	21	71	13	21	8	46
Acct.-CPA.....	12	33	58	0	0	42	50
Sales.....	17	23	59	6	6	18	59
Misc. Bus & Adv....	17	12	71	6	18	6	53
Ind. Pers. and Prod Mgnt.....	18	28	67	0	17	17	44
N.E.C.....	19	47	53	21	21	16	32
No Choice.....	44	18	45	5	16	21	18

*The bulk of women make reference to marriage in their long range plans and when job is mentioned whether alone or with marriage few mention advancement, as is evident above. When indicating their long range goals, 61% mentioned marriage by age 30 without mention of working, and 28% mentioned marriage coupled with full-or part-time work. By age 45, 36% mentioned marriage and family with no mention of working or working only if necessary, and 28% mentioned marriage coupled with working.

V. NURTURANCE NEEDS AND VOCATIONAL CHOICE

A second need regarding which specific predictions were made regarding its role in vocational choice is that of "nurturance". A person who is high in nurturance needs is, according to the operational definition provided by the items of the Edwards Scale, a helpful sympathetic type of individual. Edwards reports a correlation of $-.30$ between the nurturance and achievement needs, a relationship which was confirmed in the present study where a correlation of $-.40$ was obtained for the total group of women and $-.28$ for the total group of men. Thus it might be anticipated that the results here to be reported will be somewhat the reverse of those reported in the previous section, at least insofar as the order in which the various groups are arranged.

The general hypothesis of the study holds, in this instance, that individuals high in nurturance needs will be attracted to occupations that offer high potential for the satisfaction of that need. The fields of nursing and teaching obviously would seem to fall in this category, whereas fields such as engineering and law for men, and (in general) non-standard women's occupations would seem to offer less opportunity to satisfy such needs. Elementary education (working with young children) would on apriori bases appear to offer greater opportunity for satisfaction for the nurturant type of person than would secondary education. Evidence to be presented later indicates that these various occupations are, in fact, perceived in these ways.

The data bearing on this hypothesis are of three sorts: (a) the nurturance scores on the Edwards Personal Preference Schedule, (b) scores on the Social Welfare Group Scale on the Strong Vocational Interest Test, and (c) data from the interview.

The Edwards' Nurturance Need

Table 25 contains the basic data derived from the Edwards Scale for the various occupational groups and for the college groups. In the case of women, the analysis of variance yielded F's significant at the $.001$ level for both occupational and college groups. Of all the subgroups, those women planning to work at the elementary school level with the retarded, the handicapped, and other "special education" groups have the highest nurturance scores. Next highest are nurses, "other" elementary and secondary teaching groups, with the secondary mathematics-science teachers, the no-choice group, and the non-standard women's occupations group being lowest. The last, as will be noted in the table, was the lowest group of all in nurturance needs.

As will be noted in Table 26, where information regarding the reliability of specific differences is presented, a number of the differences are reliable at a level permitting a high degree of confidence that they are not due to chance. The non-standard women's occupational group is reliably lower in nurturance needs than all other groups with the exception of math-science teachers and the

Table 25. Means and Variances of Scores on the Nurturance Scale of the Edwards Personal Preference Schedule for the Various Occupational Choice and College Groups.

Group	N	Mn	Var
WOMEN (By Occupation)			
1. Nursing.....	48	17.4	11.0
2. Math-Sci. Teaching.....	17	14.8	11.5
3. English-Social Science Teaching	36	16.2	20.5
4. Art-Music Teaching.....	41	15.8	25.0
5. Other Secondary Teaching.....	29	17.0	13.8
6. Nursery-Kinder.Teaching.....	15	18.9	8.5
7. Elem. Special Ed. Teaching.....	27	17.3	22.8
8. Gen'l Elementary Teaching.....	101	16.3	19.6
9. Non-Standard Occupations.....	77	13.6	15.7
10. No Choice.....	24	14.0	18.0
Analysis of Variance (F,p)		5.4 (001)	
MEN (By Occupation)			
1. Engineering.....	60	12.7	25.6
2. Physical Education Teaching.....	11	16.3	8.9
3. Art-Music Teaching.....	10	15.2	23.4
4. Other Secondary Teaching.....	19	14.2	18.3
5. Medicine and Science Research.....	23	13.1	26.0
6. Law.....	24	11.3	13.6
7. Acc't and CPA.....	12	11.8	19.5
8. Sales.....	17	12.9	24.1
9. Misc. Business and Advertising.....	17	13.1	16.5
10. Ind. Personnel and Prod. Mgnt.....	18	11.3	13.3
11. Not Elsewhere Classified.....	19	14.5	27.5
12. No Choice.....	43	11.9	21.6
Analysis of Variance(F,p)		1.8 (NS)	
WOMEN (By College)			
Nursing.....	49	17.4	10.8
Secondary Education.....	151	15.7	18.1
Elementary Education.....	199	16.4	19.6
Liberal Arts.....	100	13.5	15.6
Analysis of Variance (F,p)		13.6 (001)	
MEN (By College)			
Secondary Education.....	61	14.3	14.4
Engineering.....	76	12.7	24.9
Business Administration.....	83	12.4	21.0
Liberal Arts.....	101	13.2	24.7
Analysis of Variance (F,p)		2.0 (NS)	

Table 26. Results of t tests (expressed in per cent level of confidence) of differences between means of women's groups reported in the preceding table (Table 25) of nurturance need scores as measured by the Edwards scale. Groups are coded to correspond with Table 25.

Groups	Groups								
	1	2	3	4	5	6	7	8	9
1.....		01	NS	01					
2.....	01		NS	01					
3.....	NS	NS		01					
4.....	NS	NS	NS						
5.....	NS	05	NS	NS					
6.....	NS	01	05	01	NS				
7.....	NS	05	NS	NS	NS	NS			
8.....	NS	NS	NS	NS	NS	01	NS		
9.....	01	NS	01	05	01	01	01	01	
10.....	01	NS	NS	NS	01	01	05	05	NS

Note: Values below the diagonal relate to women's occupational groups, above the diagonal to women's college groups. t's were not computed for men because of the insignificant F^T 's yielded by the analysis of variance.

no-choice group. The no-choice group and mathematics-science teachers are also lower in nurturance than most other groups, reliably so in a number of instances. On the other hand, nurses and elementary special education group comparisons yielded a number of significant t 's, these two groups having higher nurturance needs.

Comparisons among the groups going into various areas of teaching reveal some reliable differences. Mathematics-science teachers are less nurturant than any other group of prospective secondary teachers, but only in one instance (when compared with the "other" group) is the difference reliable. Prospective nursery teachers are reliably more nurturant than most secondary groups and than the general elementary group.

The data comparing the women by college reveal differences in line with those evident in the more specific occupational choice group comparisons, the groups ranking from high to low being (1) nursing, (2) elementary education, (3) secondary education, (4) liberal arts. The liberal arts group differs reliably from the other three groups, and the nursing group differs reliably from the secondary education group. The secondary and elementary education and the nursing and elementary education differences were not reliable.

The spread of the means of the various occupational groups on a standard score scale based on the norms of the Edwards scale is slightly over one full standard deviation. The standard score for elementary special education is 56, for non-standard women's occupations about 44. The general elementary education group is almost midway between these points with the mean score falling at a standard score of 49. The groups cluster around the mean of the normative data suggesting that in the instance of nurturance needs (as was also true in the case of achievement needs) Syracuse University women are similar to the broad sample of college women on whom the norms are based.

In the case of men, analysis of variance yielded F 's with p values in excess of .10 and .20 for the occupational choice and the college groups respectively. Thus while the hypothesis that women going into various occupations were random samples from the same population as regards nurturance needs could be rejected confidently, the same hypothesis could not be rejected in the case of men. Yet the differences arrange themselves in expected order. Men going into secondary teaching tended to have highest mean nurturance scores whereas prospective lawyers had lowest nurturance scores on the average. Although with these results from analysis of variance, t 's ordinarily would not be computed, the fact that specific predictions had been made with reference to teachers led us to compute certain t 's.

While the various subgroups of teachers taken individually are not reliably higher in nurturance needs than most of the other groups, when these subgroups of teachers are combined, the differences are in

the main reliable. And when prospective male teachers (the three groups combined) are compared with all men exclusive of prospective teachers, the teachers proved to have mean nurturance scores that were reliably higher at the .01 level of confidence. When comparisons are made among the men grouped by college, secondary education men are found to be reliably higher in nurturance needs than are men in the colleges of engineering (.05 level of confidence) and business administration (.01 level of confidence). As in the case of women approximately one standard deviation separates the highest group (prospective physical education teachers) from the lowest groups (prospective lawyers and prospective industrial personnel men and production managers). The means of these groups fall at standard scores of 54 and 44 respectively according to Edwards' norms.

In general, then, the comparisons with respect to the nurturance need afforded by scores from the Edwards Personal Preference Schedule confirm the hypotheses set forth at the beginning of the study. The findings are compatible with the hypothesis that teachers and nurses are attracted to their occupations by virtue of the opportunities these occupations afford for helping other people. For other choice groups in the study nurturance needs were low or average and presumably did not play so large a role in their choices.

Other Evidences of Nurturance Needs

It will be recalled from the section dealing with the interview data that secondary education males and elementary education females gave reliably more responses than other groups of their own sex reflecting nurturance needs as reasons for their current occupational choice. One more line of evidence from the interview is relevant. In one phase of the interview subjects were handed eleven cards each carrying a descriptive phrase applicable to occupation. Examples are: "A job where you would be a leader;" "A job which you would be sure of keeping and which would provide steady work;" "A very highly paid job" "A job where you could help other people." Each subject was asked to rank those "job characteristics" according to their importance to him. Interest here lies in the mean ranking assigned to the characteristic underlined above.

The results are presented in Table 27 for the college groups. For both sexes, analysis of variance indicated that the several college groups could not be viewed as representative of the same population. Among women, prospective nurses ranked "helping others" highest, followed closely by prospective elementary and secondary school teachers. The differences between the nursing group and the other three groups and between the liberal arts group and the other three were reliable. Prospective elementary and secondary teachers were not reliably differentiated. Among men, prospective teachers rated this job characteristic lower than did women going into the same field but substantially and reliably higher than men in the colleges of engineering, business administration and liberal arts. This line of evidence thus strongly supports, and for both sexes, the hypothesis regarding nurturance needs which the study sought to test.

...the means of these groups fall at

groups.

Table 27. Means and Variances of the several college groups on (a) ranking in importance given the job characteristic of "helping others", and (b) the social service group key of the Strong Vocational Interest Blank.

	Importance of Job Helping Others			Strong's Social Service Group-Score		
	N	Mn	Var	N	Mn	Var
WOMEN:						
Nursing.....	47	1.9	1.4	...	...	...
Sec. Ed.....	78	2.7	3.1	...	...	...
El. Ed.....	103	2.4	2.9	...	...	...
Lib. Arts.....	46	4.9	8.8	...	...	...
Anal. of Var. (F,p)			22.7 (001)			
MEN:						
Sec. Ed.....	24	3.0	4.5	27	49.7	85.0
Engineering.....	27	6.3	6.8	26	33.7	107.7
Bus. Ad.....	44	6.2	8.1	60	40.6	64.9
Lib. Arts.....	43	5.2	10.3	75	42.4	116.3
Anal. of Var. (F, p)			7.9 (001)			12.0 (001)

VI. AUTONOMY NEEDS AND VOCATION CHOICE

A priori consideration of various occupations during the planning of this study led to the hypothesis that people entering different occupations would differ in the need for autonomy, i.e., the need to be independent, self-directing individuals. It was thought that the occupations of nursing and public school teaching might be frustrating to people with high autonomy needs and thus would attract (or at least not repel) people who were relatively low in autonomy needs. On the other hand non-standard women's occupations and engineering and law would attract people with relatively high autonomy needs since these occupations presumably offered greater opportunities for self-direction.

The data relevant to the hypotheses relating to the need for autonomy are derived mainly from the Edwards' Personal Preference Schedule. The items that contribute to the score define the person with a high need for autonomy as one who likes:

"to be able to come and go as desired, to say what one thinks about things, to be independent of others in making decisions, to feel free to do what one wants, to do things that are unconventional, to avoid situations where one is expected to conform, to do things without regard to what others may think, to criticize those in positions of authority, to avoid responsibilities and obligations."

In the present study the need for autonomy correlated .07 and .17 with achievement need for men and women respectively, and -.28 and -.40 with nurturance needs. These correlations suggest that the various subgroups might be ranked in order somewhat reverse to their ranking on nurturance needs, especially in the case of women.

Table 28 contains the means and variances for the several groups on the Edwards' sub-scale relating to autonomy. As noted at the bottom of each grouping of data, the analysis of variance indicated that the hypothesis that the various groups constituted representative samples of the same population could be rejected at better than the .01 level of confidence in the case of women's occupational groups and women's college group. This hypothesis could not confidently be rejected in the case of the men's groupings.

It will be noted in Table 28 that prospective nurses stand out as having low autonomy needs whereas the "no choice" group and the prospective mathematics-science teachers seem to have strongest autonomy needs. Table 29 gives the results of t tests of the reliability of the various differences. In this table, it will be noted the nursing group are reliably lower than other occupational groups in six out of nine comparisons. The "no choice" group is reliably higher than other groups on three out of nine comparisons, and the non-standard women's group is reliably higher on four out of nine comparisons.

Table 28. Means and variances of the several occupational choice and college groups on the Edwards measure of autonomy need.

Group	N	Mn	Var
WOMEN (by occupation)			
1. Nurses.....	48	9.8	18.7
2. Math-Sci. Teachers.....	17	13.2	25.5
3. Eng. & Soc.Stud. Teachers.	36	11.8	21.2
4. Art & Music Teachers.....	41	12.3	17.2
5. Other Sec. Teachers.....	29	10.4	13.8
6. Nursery & Kind Teachers..	15	10.9	30.1
7. Spec. Ed. Teachers.....	27	13.0	18.9
8. Elem. Ed. Teachers.....	101	11.4	17.0
9. Non-Stand.Wom.Occ.....	77	12.7	20.2
10. No Choice.....	24	13.5	12.9
Analysis of Variance (F,p)			2.9(01)
MEN (by occupation)			
1. Engineering.....	60	14.6	26.1
2. Physical Ed.Teachers....	11	12.2	6.5
3. Art & Music Teachers....	10	12.4	13.4
4. Other Teachers.....	19	13.0	27.5
5. Medicine, Sci.Res.....	23	13.1	17.3
6. Law	24	15.3	12.2
7. Acct. & C.P.A.....	12	13.3	14.9
8. Sales	17	13.2	26.1
9. Misc. Bus.&Advertising..	17	13.0	19.6
10. Ind. Pers. & Prod.Mgt...	18	13.6	13.9
11. NEC.....	19	15.7	15.8
12. No Choice.....	43	15.0	20.6
Analysis of Variance (F,p)			1.3(NS)
WOMEN (by college)			
1. Nurses.....	49	9.9	18.5
2. Sec. Ed.....	151	12.3	19.6
3. Elem.Ed.....	199	11.7	18.0
4. Lib. Arts.....	100	12.7	18.5
Analysis of Variance (F,p)			5.4(01)
MEN (by college)			
1. Sec.Ed.....	61	13.8	16.3
2. Engineers.....	76	15.2	26.1
3. Bus. Ad.....	83	13.6	19.7
4. Lib Arts.....	131	14.1	17.2
Analysis of Variance (F,p)			1.9(NS)

Table 29. Results of t tests (expressed in per cent level of confidence) of differences between means of women's groups in Table 28 of autonomy need scores as measured by the Edwards' Scale. Groups are coded to correspond with Table 28.

Groups	Groups								
	1	2	3	4	5	6	7	8	9
1.....		01	01	01					
2.....	05		NS	NS					
3.....	NS	NS		NS					
4.....	01	NS	NS						
5.....	NS	NS	NS	NS					
6.....	NS	NS	NS	NS	NS				
7.....	01	NS	NS	NS	05	NS			
8.....	05	NS	NS	NS	NS	NS	NS		
9.....	01	NS	NS	NS	05	01	NS	01	
10.....	01	NS	NS	NS	01	NS	NS	05	NS

Note: Values below the diagonal relate to women's occupational groups, above the diagonal to women's college groups. t's were not computed for men because of the insignificant F's yielded by analysis of variance.

Examination of the comparisons among the secondary education groups reveals no reliable differences, and when the various secondary education groups are compared with the elementary groups either individually (as shown in Table 28) or as groups (i.e., all secondary with all elementary,--not shown) only one difference, that between "other secondary" and "elementary special education", proved reliable (.05 level of confidence), with the elementary group having higher autonomy needs. When the college groups are compared, nursing students are seen to have reliably lower autonomy needs than any of the other three groups, but the other three groups do not differ significantly.

Again, some perspective may be gained by comparing the means of the groups in this study with Edwards' normative data. The "no choice" group is slightly more than one-quarter standard deviation above the mean, and the nursing group is somewhat more than one-half standard deviation below the mean, a difference between the two groups of somewhat less than one standard deviation.

In general, then, but only with reference to the predicted status of the nursing and non-standard women's groups, the findings for women are in the expected direction. The findings did not support the hypotheses relating to differences among the subgroups of teachers.

As previously noted, the analysis of variance indicated that the null hypothesis could not confidently be rejected in the case of the men's groupings. However, since a specific prediction had been made, *t*'s were computed comparing the men's secondary education college group with the other college groups, and those specifically choosing secondary education (men's occupational groups Nos. 2,3, and 4 of Table 28 combined) with the rest of the men in the sample. The *t*'s did not reach an adequate level in the case of the college comparisons, but in the comparison of prospective teachers (*N* = 41) with the remainder of the males (*N* = 240) the teachers had a lower mean on the autonomy scale, a difference significant at the .05 level of confidence.

One other line of evidence bearing on autonomy needs was to be found in the ranking of job characteristics described above. Two of the phrases ("A job where you could be boss;" "A job where you could work independently, be more or less on your own") seemed, on the surface at least, to reflect autonomy. Data were available only for college subgroups for the numbers of subjects set forth in Table 27 where the findings relating to nurturance were summarized. In the case of job characteristics seemingly related to autonomy, the analysis of variance in no instance (two characteristics, males and females) indicated that the null hypothesis could be rejected.

In general, predictions regarding autonomy needs were not supported in the case of men, and the specific prediction regarding the status of prospective men teachers was only tenuously supported. In the case of women, only the prediction that the prospective nurses would have low autonomy needs was clearly sustained.

VII. OTHER NEEDS, INTERESTS AND VALUES AS RELATED TO VOCATIONAL CHOICE

The discussion of needs related to occupational choice has thus far related to three--achievement, nurturance, and autonomy--with respect to which it seemed that hypotheses could most readily be formulated. General knowledge of various occupations seemed to suggest that occupations of the type represented in this study would be differentially satisfying to these needs and thus would attract people who differed in the strength of these needs. There remains for consideration a number of other kinds of related data dealing broadly with needs, interests and values.

Other Needs Measured by the Edwards' Scale

Table 30 contains a summary of the degree to which the other twelve needs (as well as the three just mentioned) differentiated or failed to differentiate among the various groups. The values there presented indicate the level of confidence with which the null hypothesis can be rejected in various comparisons. As is noted at the head of the columns, some of the values are based on analysis of variance, some on t tests.

Inspection of the table reveals that certain needs (exhibition, succurance, aggression, as well as the consistency score) failed to differentiate in any of the comparisons; and two others (deference, heterosexual) differentiated reliably in only one of seven comparisons. Presumably these needs play a less significant role in the choice of occupation than do those which differentiate more generally among the groups. It will also be observed in Table 30 that, in addition to the needs already singled out for special consideration in previous pages of this report, the needs for change, for dominance, and for affiliation differentiated among both occupational choice and college groups, and the needs for intraception and for endurance differentiated among both occupational choice and college groups in the case of men. These needs warrant more detailed consideration.

But first, the comparisons of prospective teachers with all other subjects, and of women elementary teachers with women secondary teachers. In the last four columns of the table, results are presented based on pooled groups, thus taking advantage of the larger N 's afforded. It will be noted that prospective men teachers, when compared with all other men in the sample, not only have reliably lower achievement and autonomy and higher nurturance needs (as already mentioned), but in addition are more deferent, more self-abasing, and have less need for change. Prospective secondary teachers (women) have less need for change than women not pointing toward teaching, in addition to the previously mentioned lower achievement and higher nurturance needs. Prospective elementary teachers, compared to women not going into teaching, have a lower need for change, and higher needs for affiliation and order, in addition to differences in nurturance and achievement needs already mentioned.

Table 30. Summary in terms of levels of confidence at which the null hypothesis may be rejected of the degree to which various scales of the Edwards Personal Preference Schedule differentiated the groups studied.

Needs	Based on				Based on			
	Analysis of Variance				t tests*			
	Women, by:		Men, by:		Sec.Ed.	Sec.Ed.	El.Ed.	El.Ed.
	Occup.	Coll.	Occup.	Coll.	Men vs Women	Men vs Women	Women vs Women	Women vs Women
					Other Men	Other Women	Other Women	Other Women
Achievement.....	01	01	01	01	-05	-05	-01	-01
Deference.....	NS	NS	NS	NS	+05	NS	NS	NS
Order.....	NS	05	NS	NS	NS	NS	+01	NS
Exhibition.....	NS	NS	NS	NS	NS	NS	NS	NS
Autonomy.....	01	01	NS	NS	-05	NS	NS	NS
Affiliation.....	01	05	NS	01	NS	NS	+05	NS
Intracception.....	NS	NS	05	01	NS	NS	NS	NS
Succorance.....	NS	NS	NS	NS	NS	NS	NS	NS
Dominance.....	05	NS	01	05	NS	NS	NS	-01
Abasement.....	05	NS	NS	NS	+01	NS	NS	NS
Nurturance.....	01	01	NS	NS	+01	+05	+01	NS
Change.....	01	05	05	05	-01	-01	-05	NS
Endurance.....	NS	NS	01	01	NS	NS	NS	NS
Heterosexuality.....	NS	NS	05	NS	NS	NS	NS	NS
Aggression.....	NS	NS	NS	NS	NS	NS	NS	NS
Consistency Score...	NS	NS	NS	NS	NS	NS	NS	NS

*Note: Plus and minus signs attached to p values in the four columns to the right indicate that education groups were higher or lower respectively than the comparison group, or that the prospective elementary teachers were higher or lower than the secondary teachers.

More detailed investigation will be necessary to clothe these differences with meaning, if indeed they are corroborated by other studies. Whether the lower need for change reflects a greater rigidity on the part of prospective teachers (especially when coupled with a higher need for "order" on the part of one group), or whether this reflects a certain lack of security which is translated into a need for stability and the security of the known. The differences evident in the case of prospective men teachers also invite further study. Their greater deference and self-abasing attitudes seem to confirm some of the unfavorable stereotypes regarding teachers that are occasionally expressed.

We turn now to more detailed presentation of the facts regarding those needs which differentiated most clearly. Table 31 contains the means and variances of the occupational and college groups on the Edwards' scales relating to dominance, change and endurance. The intercorrelations among these scales are low, being -.10, .03, -.11 in the case of males and -.04, -.09 and -.09 in the case of females (total groups).

In the instance of the need for dominance, it will be noted that, among women, prospective secondary teachers tend to be high (one subgroup being the highest group of all) as also do women selecting non-standard occupations. Prospective nurses and elementary teachers tend to be low in dominance needs. Although teachers as a group were not reliably different from the rest of the women studied (this may result from the fact that nurses and non-standard occupational groups tend to be different, thus obscuring or leveling the differences when combined), as shown in Table 30, it will be recalled that prospective secondary teachers were more dominant than elementary teachers at the .01 level of confidence.

The lowest group of all (prospective nursery school and kindergarten teachers) were approximately one-half standard deviation below the mean of Edwards' normative group, whereas the most dominant (prospective English and social science teachers) were about one-half standard deviation above the mean. The general elementary group was close to the mean.

Among men, prospective lawyers were most dominant, being on the average about one-half a standard deviation above the mean of the normative group, whereas those going into medicine and science research and the most heterogeneous group (not elsewhere classified) ranked lowest, almost one-half standard deviation below the mean. Business groups are relatively high; prospective engineers and secondary teachers are about average according to test norms and among the groups included in this study. The college groups of men (analysis of variance of women's groups indicated no differences) are ranked in expected order, teachers and engineers being the two middle groups.

Though unanticipated, the need for change turned out to be a differentiating need for all four occupational and college groupings. In addition (as evident in Table 30), this need reliably differentiated the three groups of prospective teachers from the rest of

Table 31. Means and variances of the scores of the several occupational choice and college groups on the Edwards' measures of dominance, change, and endurance needs.

Group	N	Dominance		Change		Endurance	
		MN	Var	Mn	Var	Mn	Var
WOMEN (by occupation)							
Nurses.....	48	13.9	19.6	18.5	11.1	11.9	18.2
Math-Sci.Tchrs.....	17	15.5	11.2	16.6	19.8	12.1	21.0
Eng.&S.Stud.Tchrs.....	36	15.8	22.5	16.1	26.7	13.7	34.0
Art & Music Tchrs.....	41	15.4	24.4	18.0	18.0	12.2	19.0
Other Sec.Tchrs.....	29	14.9	14.3	16.4	22.3	12.8	18.7
Nursery & Kind.Tchrs....	15	11.9	18.1	17.6	9.6	12.5	16.7
El.Spec.Ed. Tchrs.....	27	12.9	13.0	16.1	24.1	11.3	20.2
El.Ed.Tchrs.....	101	14.5	20.6	17.9	19.0	12.7	24.3
Non-Stand.Wom.Occ.....	77	15.7	20.3	19.2	15.8	13.2	24.8
No Choice.....	24	13.3	19.6	18.6	20.2	13.3	31.1
Analysis of Var. (F,p)		2.4	(05)	2.7	(01)	.8	(NS)
MEN (by occupation)							
Engineering.....	60	17.3	27.5	16.6	13.3	16.6	27.7
Physical Ed.Tchrs.....	11	18.1	13.5	12.8	28.5	11.0	15.1
Art & Music Tchrs.....	10	17.6	13.0	13.0	24.8	13.7	12.6
Other Teachers.....	19	19.5	4.7	13.8	18.0	14.1	33.7
Medicine, Sci.Res.....	23	15.1	17.1	17.4	33.0	15.7	28.6
Law.....	24	20.5	6.6	14.2	21.5	12.8	20.6
Acct. & C.P.A.....	12	18.3	19.9	13.9	28.4	18.0	40.7
Sales.....	17	19.1	15.6	17.6	12.5	15.1	28.0
Misc.Bus. & Adv.....	17	18.7	11.8	15.9	15.3	11.5	26.6
Ind.Pers. & Prod.Mgt....	18	19.5	10.9	17.7	34.2	12.2	15.8
NEC.....	19	15.6	22.6	15.4	27.0	11.7	23.6
No Choice.....	43	16.9	23.0	16.1	22.7	13.5	34.5
Anal. of Var. (F,p)		3.1	(01)	2.3	(05)	3.2	(01)
WOMEN (by college)							
Nurses.....	49	14.1	20.5	18.5	11.2	11.8	19.1
Sec.Ed.....	151	15.4	18.4	17.2	21.4	13.1	24.2
Elem.Ed.....	199	14.3	19.9	17.6	19.2	12.0	22.8
Lib.Arts.....	100	14.8	24.8	18.8	20.7	12.8	26.0
Anal.of Var. (F,p)		2.0	(NS)	3.1	(05)	2.1	(NS)
MEN (by college)							
Sec.Ed.....	61	18.2	13.6	14.9	22.5	12.2	22.6
Engineers.....	76	17.3	26.7	16.7	17.8	15.6	28.6
Bus.Ad.....	83	19.1	14.1	16.6	21.6	14.3	33.2
Lib.Arts.....	131	17.2	20.5	15.2	25.0	13.1	27.0
Anal. of Var. (F,p)		3.6	(05)	3.0	(05)	5.6	(01)

their sex groups. Among women generally, as shown in Table 31, the non-standard women's group had the highest mean change score and two subgroups of teachers (one in the elementary category and one in the secondary) had the lowest mean scores. The non-standard occupational group was about one-half standard deviation above the mean of the normative group, and the two lowest groups of teachers were slightly below the mean. Among the women's college groups the two prospective teachers groups were low, as would be anticipated from the foregoing.

The three groups of prospective men teachers were the three lowest groups among the men in need for change (though the accounting and CPA group were also quite low). The highest groups were the industrial personal and production management group and the sales group. The prospective teachers were about one-half standard deviation below the mean of the normative group whereas the two highest groups were just short of being one-half standard deviation above the mean.

The need for "endurance" did not differentiate the women's groups but did differentiate the men's groups, according to the analysis of variance results. As Table 31 shows, the small group of prospective accountants and CPA's are highest; in fact they average a full standard deviation above the mean of the normative group. The prospective physical education teachers are lowest in need for endurance, being about one-quarter standard deviation below the norm mean. As will be seen in the table, the two college groups most homogeneous as to career choice of their members, engineering and secondary education rank highest and lowest respectively among the college groups with respect to need for endurance.

Two more of the Edwards' needs remain for comment, the needs for affiliation and for intraception, the basic facts for which are presented in Table 32. Although no specific hypotheses involving these needs were formulated at the outset of this study, it was anticipated that prospective teachers would be differentiated from other groups on need for affiliation and intraception on the assumption that teachers are likely to be more "people-oriented" than others. Since "intraception" refers to a need to look behind surface behavior in an effort to understand the motives of the person, its possible relevance to teaching is obvious. As Table 30 has already shown these expectations were not borne out, except in the case of prospective elementary teachers who had affiliation needs averaging higher than non-prospective teachers, a difference significant at the .05 level. It might be anticipated, too, that engineers would be thing- rather than people-oriented, and would score low on these needs and that women selecting non-standard women's occupations would in enough instances be oriented more toward success than toward people to cause this group to score low on these needs also.

As the analysis of variance results show, the null hypothesis could be rejected with confidence in the case of the affiliation need in the instance of the occupational and college groupings of

women and the college groupings of men. Among women the "no choice" group proved to have lowest affiliation needs, averaging about three-quarters of a standard deviation below the mean of the test norms. The non-standard occupation group was the next lowest group, but was about one-half standard deviation closer to the norm mean than the "no choice" group. "Other secondary teachers" had the highest mean score, a value that was about one-half standard deviation above the mean of the test norms. But other teacher groups had lower scores with the result that when college groups are compared, nurses ranked highest in affiliation needs and liberal arts women lowest. Among the men's college groups, the prospective teachers ranked highest and the engineers lowest, a ranking that seems meaningful in terms of the discussion a few paragraphs back.

In the case of need intraception, only the two men's groupings could be viewed as not representing samples from the same population. The miscellaneous business and advertising group was lowest, with the "no choice" group next low, these two groups being somewhat less than one-half standard deviation below the mean of the normative sample. Highest in intraception were the prospective art and music teachers (who were better than a half-standard deviation above the norm mean) followed closely by the medical and science research group and the NEC group. When college groupings are examined, the engineering group turned out to be lowest and the secondary education group highest, as was true in the case of the affiliation need just described. That engineers should prove lowest in this comparison, though about average when viewed in the context of the occupational group, becomes possible, of course, because of the heterogeneity of the other college groups, with the exception of secondary education.

The Strong Scores

In a gross sense, the Strong Vocational Interest Blank can be viewed as measuring the composite of needs that orient people toward different occupations. Since the test has been refined for the specific purpose of differentiating occupational groups, it would be anticipated that differences among our groups would be large, even though these differences are not defined along usual motivation or need dimensions. Since the Strong blank was not included in the basic battery the number of sets of scores available was limited and thus have been analyzed by college groupings only. Insofar as possible (scoring keys are not available for all occupations), blanks were scored on "own occupational choice", and for men on the group and non-occupational keys. With reference to the latter, some data (occupational level) has already been presented, and other data will be presented in the next section. Women's blanks were all scored on conventional women's occupations as well as "own choice." The following relates only to the occupation related scores.

The construction of the group interest scales is described by Strong (1943) and by Darley and Hagenah (1955), and it with group scores, rather than scores relating to individual occupations,

Table 32. Means and Variances of Scores on the Affiliation and Intraception Scales of the Edwards Personal Preference Schedule for the Various Occupational Choice Groups.

Group	N	Affiliation		Intracception	
		Means	Var.	Means	Var.
WOMEN (by occupation):					
Nurses.....	48	17.8	10.0	19.0	19.0
Math-Sci.Tchrs.....	17	16.1	21.5	18.5	26.1
Eng.& S.Stud.Tchrs.....	36	17.1	17.9	19.0	14.2
Art & Music Tchrs.....	41	16.3	15.6	18.0	24.9
Other Sec. Tchrs.....	29	18.5	14.9	18.4	18.6
Nursery & Kind.Tchrs.....	15	18.2	8.4	17.3	11.0
El.Spec.Ed. Tchrs.....	27	17.3	18.3	20.4	14.2
Elem.Ed.Tchrs.....	101	17.4	16.7	17.9	22.1
Non-Stand.Wom.Occ.....	77	16.0	18.2	18.0	23.0
No Choice	24	14.3	20.3	18.0	14.8
Anal.of Var. (F,p)		2.8	(01)	1.1	(NS)
MEN (by occupation):					
Engineering.....	60	13.2	15.2	15.2	19.7
Physical Ed.Tchrs.....	11	17.9	9.4	16.5	13.5
Art & Music Tchrs.....	10	13.3	21.6	19.2	10.8
Other Teachers.....	19	15.4	13.7	15.9	24.8
Medicine,Sci.Res.....	23	13.2	12.2	18.6	20.2
Law.....	24	14.3	27.4	16.0	31.0
Acct. & C.P.A.....	12	13.2	13.6	17.8	9.4
Sales.....	17	15.5	18.8	16.7	14.0
Misc.Bus. & Advt.....	17	15.8	17.0	13.9	19.5
Ind.Pers. & Prod.Man.....	18	13.7	14.2	16.0	26.9
NEC.....	19	14.4	23.3	18.0	40.3
No Choice.....	43	14.4	16.0	14.5	19.8
Anal.of Var. (F,p)		1.9	(NS)	2.7	(05)
WOMEN (by college):					
Nurses.....	49	17.8	9.8	18.9	18.6
Sec.Ed.....	151	17.0	17.2	18.6	19.2
Elem.Ed.....	199	17.1	15.2	18.3	20.1
Lib.Arts.....	100	15.9	18.2	17.7	23.4
Anal.of Var. (F,p)		3.2	(05)	1.2	(NS)
MEN (by college):					
Sec.Ed.....	61	15.6	19.1	17.2	20.4
Engineers.....	76	13.2	15.8	14.6	18.9
Bus.Ad.....	83	14.5	14.6	15.4	22.4
Lib.Arts	131	14.5	18.7	16.6	29.1
Anal.of Var. (F,p)		3.9	(01)	4.2	(01)

that the present analysis is concerned. Table 33 contains the essential descriptive data as well as the F's and confidence levels resulting from the analysis of variance. As can be seen, the results are rather clear cut, all F's being significant at the .001 level of confidence, and the college groups ordered in a reasonable arrangement. The engineering students are highest on the "scientific" and "technical" scales, while the business administration group is lowest on the scientific and also, though now with education, lowest on the "technical" scale. On the "welfare" scale (as noted in a previous section) the secondary education group is highest, and the engineers lowest. On the "business detail" and "business contact" scales, the business administration group is highest, while the secondary education and engineering come close to tying for bottom place on the business detail scale, and the engineers alone are at the bottom of the four groups on business contact. On the linguistic scale, the liberal arts and education group are relatively high, the engineering and business administration groups are relatively low. It is of interest that the two highest scores (T-scores) are for engineering students on the "technical" scale, and the education students on the "welfare" scale.

The women's form of the Strong was administered to representatives of only three of the four college groups, and scored on selected general women's occupation scores: housewife, elementary teacher, nurse, stenographer-secretary. Various considerations had led us to expect that prospective elementary teachers and those who have not yet made a choice of occupation are motivated more in the direction of marriage than career. Since members of the no-choice group likely are to be found among the liberal arts women, where also are to be found many women going into non-standard women's occupations (in which case career motivation is possibly relatively stronger than other groups and "housewife" orientation somewhat lower), a good test of the prediction in the case of the no-choice group was not possible. Since the non-standard women's group probably outweigh the no-choice group among liberal arts students, it was expected that elementary education students would have highest mean scores on the "housewife" key, and liberal arts students the lowest. As will be seen in Table 34, this was the way in which the mean scores were ranked. Examination of the other sets of scores in Table 34 reveals that, as expected, prospective elementary school teachers score higher than the other groups on the "elementary teacher" scale. But more significant is the fact that the liberal arts group, with its loading of those selecting non-standard women's occupations, are lowest of the three groups on all scores relating to the standard women's occupations. It would almost appear that their selecting non-standard occupations constitutes a rejection of the more feminine role, (i.e., the conventional women's occupational role simply does not fit their self-concepts) and in this study this has been revealed (at least suggested) in a variety of ways.

Table 33. Means and Variances of the scores on the several group scales of the Strong Vocational Interest Blank (Men by College)

College Group*	Mn.	Var	Mn.	Var	Mn.	Var
	<u>Scientific:</u>		<u>Technical:</u>		<u>Welfare:</u>	
Sec. Ed.....	34.3	81.8	26.2	58.8	49.7	85.0
Engineer.....	40.2	53.6	50.0	105.0	33.7	107.7
Bus. Ad.....	25.2	77.8	26.3	102.3	40.6	84.9
Lib.Arts.....	36.5	112.7	33.2	188.9	43.4	116.3
Anal.Var. (F,p)	21.9	(001)	22.4	(001)	12.0	(001)
	<u>Bus. Detail:</u>		<u>Bus. Contact:</u>		<u>Linguistic:</u>	
Sec. Ed.....	29.3	66.6	41.3	87.1	38.7	60.6
Engineer.....	31.0	44.8	28.9	54.0	31.9	38.7
Bus. Ad.....	44.0	120.2	46.1	94.2	33.7	64.2
Lib. Arts.....	31.3	126.8	38.9	117.8	39.5	65.5
Anal. Var. (F,p)	22.0	(001)	18.7	(001)	9.89	(001)

*N's for the secondary education, engineering, business administration, and liberal arts students are 27, 26, 60, and 75 respectively.

Table 34. Means and Variances of the scores of the several college groups of women on selected scales of the Strong Vocational Interest Blank.

Strong Scale	<u>Sec. Ed.</u>		<u>El. Ed.</u>		<u>Lib. Arts</u>		Anal. of Var. (F,p)
	Mn	Var	Mn	Var	Mn	Var	
Housewife.....	35.3	67.3	37.2	41.8	30.6	68.3	15.5 (001)
Elementary Teacher...	33.9	91.7	37.6	54.9	24.6	57.8	55.8 (001)
Nurse.....	28.6	114.6	26.6	112.8	19.3	119.6	14.3 (001)
Steno-Sec.....	40.2	94.8	43.1	55.6	39.1	109.5	5.6 (005)

Note: N's for the secondary education, elementary education, and liberal arts group are 81, 151, and 62 respectively.

Occupational "Values" Reflected in
Ranking of Job Characteristics

During the course of the interview the subjects of the study were presented with a set of eleven cards on each of which was typed a phrase descriptive of an occupation. The subjects were asked to rank these occupational "values" by arranging the cards in the order which they wished to place these values. The phrases used are as follows:

A JOB WHERE YOU WOULD BE A LEADER

AN INTERESTING AND STIMULATING JOB WHERE YOU LIKE THE WORK ITSELF

A JOB WHERE YOU COULD BE LOOKED UPON VERY HIGHLY BY YOUR FELLOW MEN

A JOB WHERE YOU COULD BE BOSS

A JOB WHICH YOU WERE SURE OF KEEPING AND WHICH WOULD PROVIDE
STEADY WORK

A JOB WHERE YOU COULD BE FREE TO EXPRESS YOUR FEELINGS, IDEAS,
TALENT, OR SKILL

A VERY HIGHLY PAID JOB

A JOB WHERE YOU COULD MAKE A NAME FOR YOURSELF--OR BECOME FAMOUS

A JOB WHERE YOU COULD HELP OTHER PEOPLE

A JOB WHERE YOU COULD WORK RELATIVELY INDEPENDENTLY, BE MORE OR
LESS ON YOUR OWN

A JOB INVOLVING GOOD VACATION PERIODS, SICK PAY, INSURANCE,
RETIREMENT BENEFITS, ETC.

Table 35 contains the mean ranks assigned these "values" by the several college groups. The analysis of variance (each value, male and female groupings separately) revealed, first, that the men groups tended to rank these characteristics essentially alike. The null hypothesis could be rejected in only two instances, at the .05 level of confidence in the case of "freedom of expression" and at the .001 level of confidence in the case of "helping others". Engineers valued "freedom of expression" most, and business administration students valued it least. Prospective teachers (as already noted) varied markedly from the other three male groups in valuing a job where it was possible to help others. In all other respects the men were remarkably alike. Most of all they valued an interesting and stimulating job with freedom of expression a close second; least of all were they interested in a job where they could be boss, would reap substantial "fringe" benefits, or where they might become famous.

Table 35. Mean Rankings Given Various Occupational "Values" by the Several College Groups (Those most highly valued are assigned lower rank values.)

	WOMEN				MEN			
	Nur.	Sec Ed.	El. Ed.	Lib. Arts	Sec Ed.	Engr	Bus Ad.	Lib. Arts
Job as leader.....	6.1	6.3	6.9	7.0	5.3	5.5	4.9	6.2
Interesting job.....	1.7	1.2	2.1	1.6	2.7	1.9	2.6	2.0
Prestige job.....	5.4	6.4	6.6	5.4	5.7	6.4	5.7	5.1
Job as boss.....	9.2	9.5	9.1	9.4	9.0	8.0	7.4	8.2
Steady job.....	5.7	6.4	5.9	7.1	6.8	6.6	6.5	7.2
Freedom of Expression.....	4.2	2.8	3.7	3.2	3.3	2.9	4.8	3.9
Highly paid job.....	9.0	9.0	8.9	7.6	8.8	7.3	7.0	7.1
Become famous.....	9.6	8.9	9.2	7.2	8.7	7.6	8.2	7.4
Help others.....	1.9	2.7	2.4	4.9	3.0	6.3	6.3	5.2
Work independently..	5.9	4.9	4.8	4.9	5.7	5.5	5.5	5.5
Benefits.....	7.4	7.2	6.5	7.8	7.1	8.1	7.7	8.2
No. of Subjects.....	47	78	103	46	24	27	44	43

Among women there were more and greater differences. The null hypothesis could be rejected in seven out of the eleven values: "prestige of job" at the .001 level of confidence; "steady job", at the .05 level; "freedom of expression", at the .001 level; "highly paid" job, at the .01 level; job where one could "become famous", at the .001 level; job where one could "help others", at the .001 level; and job with "benefits", at the .01 level. In the other four instances (job as leader, interesting job, job as boss, and working independently) the groups could not be considered dissimilar in the light of the analysis of variance results. Liberal arts and nursing students ranked interest in a prestige job higher. Nursing and elementary education students were more interested in a steady job, liberal arts students least interested. Secondary education students were most interested in a job with freedom of expression, nursing students least interested. Though all groups tended to rate down "high pay" and "becoming famous", liberal arts women ranked these "values" higher than did the others. Nurses rated "helping others" highest of the four groups, and liberal arts students rated this "value" lowest, but this expression of nurturance needs was high for all female groups. Elementary education students rated a job with fringe benefits higher than did the others.

Attention to differences, the focus of the preceding paragraph, tends of course to obscure basic similarities. Actually all four women's groups ranked an interesting and stimulating job, a job with freedom of expression, and a job with opportunities to help others at the top of the list. And they agreed quite well in placing jobs where one could be boss, where one could become famous, or make a name for himself, or where one would earn high pay, at the bottom of the list. Men and women also agreed fairly well in the overall ranking. A greater interest on the part of men in leadership, and on the part of women in nurturance are the most striking contrasts.

VIII PERSONALITY FACTORS IN VOCATIONAL CHOICE

A number of "personality" measures had been administered in the study: several purporting to measure "rigidity", a measure of anxiety, the Strong Vocational Interest Blank, and the Guilford-Zimmerman Temperament Scale. In the case of the rigidity scales certain specific hypotheses had been formulated; the others were administered for general descriptive purposes. It will be recalled that certain of these measures (the F-scale, the Rigidity of Habits Scale, and the brief anxiety scale) were part of the basic battery and were administered to most of the subjects. The other measures were administered to relatively few. For the "basic battery," data are thus available for comparisons among both occupational and college groupings; for the other scales the numbers of subjects were large enough to warrant comparisons only among the college groups.

Table 36 contains an overview of the findings, the figures therein contained being the outcomes of the analysis of variance, expressed in terms of the levels of confidence at which, according to the F values obtained, specific null hypotheses may be rejected. Descriptive data (means, variances) will be presented only for those groups where the F's proved significant.

Measures of Rigidity

A number of the measures, listed first in the table, relate to rigidity. It had been hypothesized at the outset of the study that rigid individuals would tend to prefer structured environments, and thus would tend to select occupations which involved processes, operations, materials, and decisions that are relatively well-defined. It was predicted, for example, that rigid individuals might go into engineering or into mathematics-science teaching. Persuasive arguments and illustrations may be marshalled in support of this hypothesis, but in no instance did the analysis of variance indicate that the various occupational and/or college groups could be considered other than random samples of the same population. One could not with confidence reject the null hypotheses involved in the several comparisons. In only one instance, when prospective men teachers were compared with all other men on the Attitude Toward Rigidity of Habits scale, did the difference prove reliable. The respective means were 70.8 and 65.9 with the difference reliable at the .01 level with N's of 41 and 309 for teachers and other men.

Three measures had been used: (1) The F-scale, (2) a scale of Attitudes toward Rigidity of Habits, and (3) the Stereopathy scale of Stern's Inventory of Beliefs. The varied results regarding rigidity reported in the literature suggest that serious question may be raised regarding the adequacy and meaning of any particular measure. It may be that our results should be taken at face value: for our types of subjects and for the occupational choices involved rigidity is not a significant variable. Or it may be that the measures utilized do not tap the type of rigidity involved in occupational choice.

Table 36. Summary of the results of the analysis of variance with respect to the various personality measures, as expressed by the level of confidence at which the F's were significant.

	Women		Men	
	Occup.	Coll.	Occup.	Coll.
Rigidity (F-scale).....	NS	NS	NS	NS
Rigidity of Habits	NS	NS	NS	NS
Anxiety.....	01	05	05	NS
Stern (Stereopathy)	..	NS	..	NS
Strong:				
Interest Maturity.....	..	..	..	NS
Masculinity-Femininity.....	..	01	..	01
Guilford-Zimmerman:				
Gen'l Activity	..	NS	..	01
Restraint.....	..	NS	..	NS
Ascendancy.....	..	NS	..	01
Sociability.....	..	01	..	01
Emotional Stability.....	..	05	..	NS
Objectivity.....	..	01	..	NS
Friendliness.....	..	05	..	NS
Thoughtfulness.....	..	NS	..	NS
Personal Relations.....	..	05	..	NS
Masculinity.....	..	NS	..	NS

Manifest Anxiety

The measure of anxiety used in the study did differentiate the groups, as Table 36 shows. The means and variances are presented in Table 37. Although not explicitly stated among the hypotheses, it had been anticipated that teachers as a group might be more insecure psychologically and might manifest this insecurity in more ready admission of anxiety symptoms. Instead, the most anxious (as measured) group among the women turned out to be the "no choice" group, and the least anxious "other secondary teachers." While two of the subgroups of teachers ranked high (art-music teachers and elementary special education teachers) the five lowest groups were also teachers. When the women subjects were classified by college, the liberal arts group had the highest mean score (7.2), the nurses next highest (6.3) and the elementary and secondary education groups lowest scores with means of 5.7 and 5.9 respectively. Among men, the "no choice" group also had the highest mean score; the lowest mean being that of the sales group. The highest of the three subgroups of teachers falls about in the middle of the array of means. Thus any even tentative notions that prospective teachers might be characterized as anxious in terms of the measure employed were not substantiated.

Other Personality Measures

A portion of the findings derived from administration of the Strong Vocational Interest Blank has already been presented. Certain miscellaneous findings, available only for college groupings, will now be turned to. First, the matter of interest maturity. Findings already presented suggesting that male teachers are not particularly career oriented, would seem to lead to the expectation that their interests might be relatively undifferentiated and that they would prove to be less mature on the Interest-Maturity Scale of the Strong. The analysis of variance, however, indicated that the several college groups could not confidently be viewed as other than representatives of the same population. (See Table 36).

The analysis of variance results summarized in Table 36 indicate that the null hypothesis can be rejected at the .01 level for college groupings of both sexes in the case of the masculinity scores. Among women, the prospective elementary teachers were most feminine with a mean score of 54.4, prospective high-school teachers next with a mean of 51, and liberal arts women least feminine of the three groups according to this measure with a mean score of 47.7. The Strong blank was not administered to nursing students.

Among men, engineering students proved to be most masculine, business administration students, next, and liberal arts students third. Education males were least masculine. The mean scores for these groups were 56.3, 49.1, 44.7, and 42.0 respectively. The high masculinity scores of the engineers are not unexpected, but in view of the number of physical education students among our teaching group, the low mean score of teachers is a bit surprising.

Table 37. Means and Variances of Scores on the measure of manifest anxiety for the several occupational choice and college groups.

Group	N	Mn	Var
WOMEN (By Occupation)			
Nursing.....	48	6.4	12.5
Math-Sci. Teachers.....	17	5.6	13.2
English-Soc. Stud. Teachers.....	36	5.4	11.9
Art-Music Teachers.....	41	6.7	11.3
Other Secondary Teachers.....	29	4.8	9.7
Nursery-Kindergarten Teachers.....	15	5.7	16.4
Elem. Spec. Educ. Teachers.....	27	7.4	14.4
Gen. Elem. Educ. Teachers.....	101	5.2	13.6
Non-Standard Women's occupation.....	77	6.3	17.0
No Choice.....	24	9.2	16.4
Analysis of Variance (F,p).....		3.5	(.001)
MEN (By Occupation)			
Engineering.....	60	5.4	20.0
Physical Ed. Teachers.....	11	5.5	4.4
Art-Music Teachers.....	10	5.1	12.7
Other Secondary Teachers.....	19	4.9	13.9
Medicine and Science Research.....	23	5.4	7.5
Law.....	24	6.0	17.1
Acc't and CPA.....	12	5.2	10.6
Sales.....	17	3.6	9.2
Misc. Bus. and Adver.....	17	7.9	18.9
Indus. Pers. & Prod. Mgmt.....	18	5.4	17.2
NEC.....	19	5.9	17.3
No Choice.....	43	8.0	21.5
Analysis of Variance (F,p).....		2.2	(.05)
WOMEN (By College)			
Nursing.....	49	6.3	12.6
Secondary Education.....	151	5.9	13.6
Elementary Education.....	202	5.7	15.5
Liberal Arts.....	100	7.2	16.9
Analysis of Variance. (F,p).....		3.7	(.05)
MEN (By College)			
Secondary Education.....	61	5.5	16.6
Engineering.....	76	5.9	20.7
Business Administration.....	83	5.3	14.9
Liberal Arts.....	131	6.5	16.1
Analysis of Variance (F,p).....		1.6	(NS)

On the other hand, in many of the comparisons made thus far in the present report secondary education men, who are going into a "helping" occupation, have tended to respond in the direction of women going into the same fields, though marked differences between these men and the women subjects were, of course, clearly evident. It may well be that relatively low masculinity is predisposing to the selection of public school teaching as a career.

Table 38 presents the descriptive data for those Guilford-Zimmerman subscales for which analysis of variance indicated the null hypothesis could be rejected for either or both of the men's and women's college groupings. It will be noted that in the instance of the three scales that differentiate men (general activity, ascendancy, sociability) the business administration students have the highest mean scores and the engineering students the lowest. These two groups probably represent contrasts with respect to people- vs thing-orientation, and these subscales relate to interactions with people, in the main. Of these three scales only the sociability scale differentiates the women's college groups; the elementary education group scored highest, the liberal arts group lowest. The subscales of objectivity, friendliness, and personal relations differentiated the women's groups but not the men's. On all of these scales the elementary education group scored highest, and the liberal arts group lowest. The meaning of these differences are left as a subject of speculation for the reader. It may be ventured, suggested by these and other findings, that the elementary education group, more than any other group, is made up of well-adjusted, feminine-type women, interested in marriage and people, and little concerned with a career.

Table 38. Means and Variances of Scores of the Several College Groups on Selected Subtests of the Guilford-Zimmerman Temperament Scale together with analysis of variance results (F, p)

	Gen. Act.		Ascend.		Sociability		Emot. Stab.	
	Mn	Var	Mn	Var	Mn	Var	Mn	Var
WOMEN:								
Sec. Ed...	17.9	23.9	16.4	24.8	21.9	26.9	17.7	31.9
El. Ed....	16.6	21.3	17.1	21.9	23.0	22.8	18.4	24.9
Lib. Arts.	17.7	25.7	16.7	35.4	19.0	43.2	16.2	29.3
F,p.....	2.1	(NS)	.41	(NS)	10.5	(.001)	3.1	(.05)
MEN								
Sec. Ed...	16.9	29.7	17.1	19.9	20.9	33.2	16.8	37.6
Engin.....	12.1	28.2	13.2	25.7	17.1	28.9	16.7	14.3
Bus. Ad...	18.2	29.8	19.0	29.5	22.6	25.2	19.2	31.8
Lib. Arts.	15.0	27.5	15.9	24.2	18.0	36.7	17.5	39.0
F,p.....	5.8	(.001)	6.0	(.001)	6.6	(.001)	1.3	(NS)
	Objectivity		Friendliness		Pers.		Rel.	
	Mn	Var	Mn	Var	Mn	Var	Mn	Var
WOMEN:								
Sec. Ed...	17.3	22.4	16.4	27.7	17.7	33.7		
El. Ed....	19.0	21.2	17.4	19.6	19.0	23.2		
Lib. Arts.	16.2	23.1	15.3	20.9	17.0	23.9		
F,p.....	7.4	(.001)	3.7	(.05)	3.1	(.05)		
MEN								
Sec. Ed...	16.9	27.3	14.3	41.2	18.5	22.3		
Engin.....	17.8	30.9	17.1	26.8	18.9	14.3		
Bus. Ad...	19.0	23.9	13.7	19.9	19.0	24.2		
Lib. Arts.	18.7	31.3	14.8	34.4	17.4	34.1		
F,p.....	<1	(NS)	1.5	(NS)	<1	(NS)		

Note: N's are as follows: Women, Sec. Ed., 71; El. Ed. 118; Lib. Arts, 56. Men, Sec. Ed., 23; Engineering, 16; Bus. Ad., 45; Lib. Arts, 48.

IX PERCEPTION OF THE NEED SATISFACTION POTENTIAL OF VARIOUS OCCUPATIONS

It was suggested in the introductory paragraphs of this report that people tend to select those occupations that they perceive as possessing the potential of satisfying their complex of needs. The hypotheses advanced at the outset of the investigation regarding the needs of individuals selecting various occupations (with special reference to needs for achievement, nurturance, and autonomy) were based upon apriori judgments by the investigators regarding the need satisfaction potential of those occupations with respect to which predictions were made. But what about the subjects themselves? It is obviously important in evaluating vocational choice to know something about the expectations regarding an occupation of those individuals selecting that occupation and something about the degree of congruence between those expectations and the reality of the situation, perhaps as judged by individuals already in that field.

Since the present study focused primarily upon needs, the types of expectations investigated related to needs, and how individuals selecting different occupations differed in their perceptions. For example, do prospective engineers' perceptions of the achievement need satisfaction potential of engineering differ from prospective teachers' perception of the achievement need satisfaction potential of teaching? In the case of prospective teachers, expectation-reality congruence was investigated by comparing prospective teacher perceptions with the perceptions of teachers-in-service.

The instrument (which was described earlier) and its use in this study represents, to the present writers' knowledge, one of the few instances in which a systematic effort has been made to evaluate perceptions of an occupation along the dimensions of a number of needs. Although many studies have been made of the way in which different occupations are perceived by the public, these studies relate mainly to what might be called achievement needs, i.e. the status of an occupation.

Although ratings were made on an 11-point scale ranging from -5 through 0 to +5, it was convenient for purposes of statistical manipulation to change all scores to positive numbers by the addition of the constant 6. Thus all of the data are presented in terms of an 11-point scale ranging from 1 through 11. Six becomes the midpoint. A rating of "1" represents "-5" on the original scale and the judgment that the particular occupation would be extremely frustrating and a rating of "11" represents "+5" on the original scale and the judgment that this occupation would be extremely satisfying to the particular "type" of person.

Needs vs. Perceptions in General

Before examining the data relating to the need satisfaction potential of various occupations, two questions are relevant. First, to what degree do the ratings of subjects of the occupation reflect the measured level of their own needs regardless of the occupation rated. Second, in general, what needs do people typically

see as being satisfiable in the context of the work life. Obviously some needs are satisfied in home and family relationships, some in community activities, some in participations in sports, or in a combination of contexts which may or may not include occupation.

A partial answer to the first of the above questions is to be found in the correlations between particular measured needs (Edwards Scale) and the rated potential of the occupation of choice for satisfying the particular needs, ignoring the particular occupations being rated. Such correlations were computed, involving as subjects a total of 434 college women and 289 college men. Correlations were in every instance positive but low, ranging from .01 to .32. With N's of this size, only 4 of 28 proved not significantly different from zero; 20 of the 28 r's were reliably different from zero at the .01 level. The four not reliably different from zero involved "deference" in the case of both sexes, and "exhibition" and "dominance" in the case of women. Correlations between .11 and .19 inclusive were obtained in the instance of "achievement" (women), "order" (women), "intraception" (women), "succurance" (men), "abasement" (men and women), "change" (women), "endurance" (women), and "aggression" (men and women). Correlations between .20 and .29 inclusive, were obtained in the case of "achievement" (men), "order" (men), "exhibition" (men), "autonomy" (men and women), "affiliation" (women), "succurance" (women), "nurturance" (men and women), "change" (men), and "endurance" (men). Only two correlations were above .30, in the case of "intraception" and "dominance" in the male sample.

In total, while there is in most cases a reliable relationship between personal needs as measured and the perception of the occupation of one's choice for satisfying those needs, the relationships are at best quite low.

What needs are perceived as being generally satisfiable in the context of occupation? Which are neither satisfied nor frustrated in the occupational world? And which are likely to be frustrated by the occupational environment? In every instance, of course, "occupation" means the particular occupations the individual subjects of this study selected, and they differ for men and women. In the grouping below, we have arbitrarily called the range of 5.0 through 6.99 as the neutral range of "no special potential" for satisfaction or frustration, the range of 7.0 through 8.49 and 3.5 through 4.99 as the range of "moderate" potential for satisfaction and frustration respectively, and 8.5 and above and 3.49 and below as the range of "high" potential for satisfaction and frustration respectively. Mean ratings with respect to the several personality "types" were computed without regard for the occupation actually being rated. When these means were classified in the above categories, the following groupings appeared (numbers in parentheses are mean ratings):

High Potential for Satisfaction:

Women: Intraception (9.8), nurturance (9.1), intellectual (8.6)
Men: Achievement (9.4), endurance (9.4), intellectual (8.6)

Moderate Potential for Satisfaction:

Women: Achievement (7.2), affiliation (8.4), dominance (7.0), endurance (8.4), security (7.7), change (7.4)
Men: Order (7.6), affiliation (7.6), intraception (7.8), dominance (7.6), nurturance (7.9), change (7.9), social status (7.4)

No Special Potential for Satisfaction or Frustration:

Women: Deference (5.0), order (6.5), exhibition (5.0), social status (6.5)
Men: Deference (5.0), exhibition (5.4), security (6.4), economic gain (6.1)

Moderate Potential for Frustration and Dissatisfaction:

Women: Autonomy (3.7)
Men: Autonomy (4.8), abasement (3.5), aggression (4.0)

High Potential for Frustration and Dissatisfaction:

Women: Succurance (3.4), abasement (3.4), aggression (2.9), economic gain (2.5)
Men: Succurance (3.4)

In general, the classification of the needs by men and by women agree quite well. In only one instance was a need classified more than one category apart by the two sexes. Women thought a desire for marked economic gain would generally be highly frustrated in the types of occupations they were selecting whereas men in general thought their occupations offered no especial opportunity or frustration along this line.

In evaluating these findings, reference must be made to the actual descriptions used as well as to the degree to which people described in various terms are likely to generally be admired. Although at present we have no information regarding the degree to which the personality types described in the instrument used are generally admired or disapproved in the American culture, it seems not unreasonable to assume that the self-abasive and the succurant type of person are not too highly regarded and would be viewed as lacking acceptance (hence encountering frustration) in almost any context. As described by Edwards, and in our sketches, the autonomous and aggressive types are likely viewed as the type of people who would generate counter-aggression, a circumstance which could be occupationally disastrous. People with such needs presumably must express them elsewhere or in socially acceptable forms if they are to encounter other than frustration in their jobs. It is of interest that both sexes rated about half of the 18 needs described as being potentially satisfiable to a moderate or high degree in work, and rated less than a quarter as being potentially frustrated to a moderate or low degree. Our subjects were, of course, all advanced college students selecting higher-level types of occupations. Presumably such people see more potential for intrinsic need satisfaction in their work than would be true of

unskilled laborers or others working at lower-level jobs.

Perceived Need Satisfaction Potential of Specific Occupations

Analysis of variance results indicated that, in the main, people selecting one occupation viewed it differently from the way in which people selecting another occupation viewed their choice. The null hypothesis could not be rejected in only about a third of the comparisons--in the case of women in the instance of the following needs: achievement, dominance, abasement, aggression, and intellectual; and in the case of men, in the following instances: deference, autonomy, succorance, and abasement.

Since certain hypotheses stated at the beginning of this report related specifically to the needs for achievement, nurturance, and autonomy, we shall first turn to the data relevant to the perceptions in these areas. Table 39 contains the appropriate means and variances.

Although the analysis of variance indicated that the women's groups could not be viewed as other than representative of a common population with respect to achievement needs, the fact that a specific hypothesis had been stated justifies certain comparisons within the groups. It will be noted, as hypothesized, that women going into the non-standard women's occupations perceived their choices as having higher potential for achievement need satisfaction than did teachers. When all prospective women elementary teachers and all prospective women secondary teachers were compared to the non-standard occupation groups, the differences between the latter group and the two groups of teachers were reliable at the .01 level of confidence.

In the case of men, the analysis of variance indicated that the null hypothesis could be rejected at the .001 level of confidence. Inspection of the means reveals the teacher groups to see the occupation of their choice as having moderate potential for achievement need satisfaction, but they were still among the lowest of the groups in this regard. In view of the study we had incorrectly expected that prospective teachers would see this need as likely being frustrated in the teaching field. It could well be, of course, that others are led to avoid teaching because they see it as a field potentially frustrating to achievement needs. The question of how teaching and other fields are viewed by people in general (not just those selecting them) must be reserved for further study. In the present investigation, the ratings of the prospective lawyers and prospective engineers regarding the achievement need satisfaction potential of their fields clustered tightly around the upper end of the rating scale.

In general, then, especially when the differences among groups rather than the mean ratings are considered, the hypothesis regarding prospective teachers perceiving the occupation of their choice as offering less opportunity to a person of high achievement needs than the opportunity thought present by people selecting certain other fields is supported. However, our hypothesis that

Table 39. Comparison of the occupational groups (means and variances) with respect to their perceptions of the need satisfaction potential of their occupational choices for achievement, nurturance, and autonomy needs.

Group	N	Ach		Nur		Aut	
		Mn	Var	Mn	Var	Mn	Var
Women:							
Nursing	48	7.6	7.7	10.7	.3	2.7	3.5
Math. & Sci. Tchrs	16	6.6	11.3	9.6	2.3	3.7	5.8
Eng. & S. Stud. Tchrs	35	7.3	9.3	9.7	2.5	4.0	8.7
Art & Music Tchrs	40	7.1	8.7	9.6	3.7	3.8	8.7
Other Sec. Tchrs	27	6.4	10.5	9.3	3.8	2.9	3.5
Nursery & Kind. Tchrs	16	6.4	8.7	10.6	.5	3.6	7.5
Spec. Ed. Elem. Tchrs	26	7.6	9.2	10.0	3.1	4.2	9.0
Gen. Elem. Tchrs	96	6.5	10.0	10.0	1.5	3.5	5.7
Non-Stand. Wom. Occ.	78	8.2	8.8	8.1	6.6	4.5	10.6
Anal. of Var. (F,p)		2.0 (NS)		9.8 (001)		2.3 (05)	
Men:							
Engineers	60	10.2	1.8	7.1	3.7	5.6	10.2
Phys. Ed. Tchrs	11	7.1	9.7	9.0	2.9	3.1	6.6
Art & Music Tchrs	9	8.4	7.8	9.1	2.5	3.9	7.0
Other Sec. Tchrs	19	8.6	5.5	9.8	2.0	3.5	5.7
Medicine, Sci. Res.	22	9.4	4.3	8.2	6.2	5.9	11.0
Law	24	10.6	1.0	8.3	6.5	5.3	8.9
Acct. & C.P.A.	12	9.7	2.7	7.7	4.1	3.7	7.9
Sales	16	9.8	3.2	7.4	3.6	5.0	9.3
Misc. Bus. & Advt.	17	9.2	7.2	6.7	6.1	4.7	6.8
Ind. Pers., Prod. Man.	17	8.5	5.3	8.3	5.2	3.9	5.6
NEC	19	8.3	8.1	8.5	4.4	5.1	9.8
Anal. of Var. (F,p)		3.7 (001)		3.6 (001)		1.7 (NS)	

secondary teachers would perceive this field as having higher achievement need satisfaction potential than prospective elementary teachers thought was true of this field was not substantiated. When all prospective secondary teachers were compared with all elementary teachers the difference in mean rating was only .31 and not significant.

Our hypothesis regarding the degree to which various occupations are perceived as offering satisfaction to nurturance needs appears to be strongly supported. For both sexes, analysis of variance indicated that the null hypothesis could be rejected at the .001 level of confidence. Prospective nurses and prospective elementary teachers "see" high potential. The secondary education group was high, but reliably lower than the groups just mentioned, and the non-standard women's occupation group was lowest of all, and reliably lower than the elementary and secondary education groups, as predicted. Among men prospective school teachers were higher than any other group in their "seeing" the possibility of satisfying nurturance needs in their field.

The picture is not so clear in the case of need for autonomy. According to the analysis of variance results the null hypothesis could not be rejected in the case of the men's groups and at only the .05 level of confidence in the case of the women's groups. On the average, every group thought that the highly autonomous person as defined by the Edwards scale would encounter some frustration in his occupation. Yet there were differences in the predicted directions. Though both groups thought the high autonomy need person would be frustrated, prospective nurses thought this frustration would be greater in their field than elementary education people thought would be true in theirs. It had been thought likely in advance that the autonomous person would be perceived as being more likely to be frustrated in the elementary than in the secondary field. The slight difference that did exist was not reliable.

Though the average ratings of the men's groups were all below the midpoint of 6, several of the groups (prospective engineers, seemed to think that while the autonomous individual would not find particular satisfaction for this need in the job, neither would be greatly frustrated. Prospective male teachers, on the other hand, thought such a person would be frustrated in this field. In general, then, the differences were again in the direction hypothesized.

The detailed facts with respect to the perceived potential of various occupations for satisfying other needs are presented in Tables 40 through 44. But rather than recite here the many comparisons possible, comment will be made regarding differences that appeared when the all prospective elementary teachers, all prospective women secondary teachers, and all prospective men secondary teachers (i.e., the several subgroups being combined) were compared with other groups combined.

Table 40. Comparison of the occupational groups (means and variances) with respect to their perceptions of the need satisfaction potential of their occupational choices for change, endurance, and intellectual needs.

	Change		Endur		Intell	
	Mn	Var	Mn	Var	Mn	Var
Women:						
Nursing	7.8	7.0	8.3	7.5	8.8	4.2
Math. & Sci. Tchrs	6.3	11.6	7.1	4.1	8.8	5.2
Eng. & S. Stud. Tchrs	6.0	12.5	8.3	6.9	9.6	5.3
Art & Music Tchrs	8.3	8.0	7.8	6.6	8.3	7.0
Other Sec. Tchrs	6.5	12.4	9.3	2.7	7.6	7.1
Nursery & Kind. Tchrs	6.9	9.9	7.9	6.7	8.1	8.0
Spec. Ed. Elem. tchrs	5.5	8.5	9.1	7.2	8.3	8.0
Gen. Elem. Tchrs	7.2	11.0	8.1	8.1	8.6	6.8
Non-Stand. Wom. Occ.	8.5	9.3	9.2	5.1	8.6	8.6
Anal. of Var. (F,p)	3.1 (01)		2.5 (05)		1.3 (NS)	
Men:						
Engineers	9.0	4.2	10.3	1.3	10.0	3.0
Phys. Ed. Tchrs	5.8	10.0	8.6	3.7	8.3	4.7
Art & Music Tchrs	6.4	8.7	8.6	6.0	8.0	5.1
Other Sec. Tchrs	5.9	10.6	9.1	5.3	8.4	5.9
Medicine, Sci. Res.	8.6	6.3	9.9	2.9	10.0	3.6
Law	7.9	4.2	9.4	2.0	9.5	3.6
Acct. & C.P.A.	7.1	9.1	10.3	1.0	7.3	7.6
Sales	9.2	3.5	8.6	5.1	7.2	8.5
Misc. Bus. & Advt.	8.8	9.1	8.6	7.3	6.4	8.6
Ind. Pers., Prod. Men	8.1	6.2	8.1	6.3	7.1	8.8
NEC	8.0	9.7	9.3	2.0	8.7	6.1
Anal. of Var. (F,p)	3.7 (01)		3.5 (01)		3.6 (001)	

Table 41. Comparison of Occupational Groups (Means and Variances) with respect to their Perceptions of the Need Satisfaction Potential of their Occupational Choice for the Needs of Dominance, Exhibition and Order.

	N	DOM		EXH		ORD	
		Mn	Var	Mn	Var	Mn	Var
WOMEN:							
Nursing.....	48	6.3	10.8	3.4	4.6	7.1	9.6
Math & Sci. Tchrs.....	16	7.3	6.6	5.7	11.8	7.9	7.5
Eng. & Soc. St. Tchrs	35	8.3	5.7	6.9	8.3	6.5	10.1
Art & Music Tchrs.....	40	6.8	9.5	5.3	8.8	6.1	9.7
Other Sec. Tchrs.....	27	7.4	7.6	4.2	11.4	8.0	6.0
Nursery & Kdg. Tchrs.....	16	6.9	8.9	5.0	12.1	6.3	10.9
Spec. Ed.Elem.Tchrs.....	26	5.8	9.1	3.9	11.2	4.2	8.8
Gen.Elem.Tchrs.....	96	7.2	8.7	5.3	11.4	7.1	8.9
Non-Stand.Women Occ.....	78	6.7	10.2	4.7	8.1	5.7	10.4
Anal.of Var. (F,p)		1.8	(NS)	3.9	(001)	3.9	(001)
MEN:							
Engineers.....	60	7.0	9.1	4.7	5.2	8.1	4.4
Phys. Ed. Tchrs.....	11	7.1	10.5	4.5	8.6	7.2	6.0
Art & Music Tchrs.....	9	5.4	7.4	4.0	7.6	7.6	4.0
Other Sec. Tchrs	19	7.2	5.9	5.0	9.7	8.6	5.0
Medicine,Sci.Res.....	22	7.1	8.4	5.0	9.1	6.3	11.2
Law.....	24	10.1	.9	7.9	5.4	8.2	6.2
Acct. & C.P.A.....	12	8.3	2.7	3.9	3.4	9.5	4.9
Sales.....	16	8.6	7.4	5.8	6.3	7.1	7.2
Misc.Bus. & Advt.....	17	7.3	12.2	6.1	11.4	6.5	8.6
Ind. Pers.Prod.Man.....	17	7.7	7.3	5.5	9.4	6.2	6.5
NEC.....	19	6.6	8.8	6.0	8.9	7.6	7.2
Anal. of Var. (F,p)		3.1	(01)	3.0	(01)	2.6	(05)

Table 42. Comparison of the Occupational Groups (Means and Variances) with Respect to their Perceptions of the Need Satisfaction Potential of their Occupational Choices for the Needs of Intracception, Affiliation, and Deference.

	N	Intra		Aff		Def	
		Mn	Var.	Mn.	Var.	Mn.	Var.
Women:							
Nursing	48	10.5	5.4	8.9	3.6	6.7	10.9
Math & Sci. Tchrs	16	9.8	3.9	8.1	3.8	4.9	8.2
Eng. & Soc. St. Tchrs	35	9.9	2.2	8.3	7.7	6.1	8.8
Art & Music Tchrs	40	10.1	2.6	8.8	5.3	5.6	7.9
Other Sec. Tchrs	27	9.4	3.6	8.3	6.6	4.8	10.5
Nursery & Kdg. Tchrs	16	9.4	3.3	9.3	1.8	6.8	7.5
Spec. Ed. Elem. Tchrs	26	10.3	.9	8.1	7.9	3.4	4.4
Gen. Elem. Tchrs	96	10.1	2.3	9.1	2.8	5.2	8.3
Non-Stand. Wom. Occ.	78	8.9	6.8	7.2	7.4	4.7	8.3
Anal of Var. (F,p)		4.0 (001)		4.2 (001)		3.6 (001)	
Men:							
Engineers	60	6.9	5.8	7.6	3.3	4.9	6.5
Phys. Ed. Tchrs	11	8.8	7.8	8.6	4.3	4.1	8.1
Music & Art Tchrs	9	9.8	2.2	9.1	1.2	6.1	11.9
Other Sec. Tchrs	19	9.8	3.1	8.8	4.3	6.1	14.2
Medicine, Sci. Res.	22	7.9	10.2	7.2	8.0	4.0	5.1
Law	24	8.7	6.5	7.2	5.4	4.8	7.8
Acct. & C.P.A.	12	7.2	1.6	7.3	2.2	5.2	3.3
Sales	16	7.2	8.4	8.9	2.6	4.3	9.9
Misc. Bus. & Advt.	17	6.7	6.6	6.7	8.3	4.4	8.8
Ind. Pers., Prod. Man	17	8.6	5.2	8.1	4.9	5.5	4.4
NBC	19	8.4	6.8	7.1	8.6	5.0	7.1

Table 43. Comparison of the Occupational Groups (Means and Variances) in Perceptions of the Need Satisfaction Potential of their Occupational Choice for the Needs of Succorance, Aggression and Abasement.

	N	SUCC		AGG		ABAS	
		Mn	Var.	Mn	Var.	Mn	Var.
WOMEN:							
Nursing.....	48	3.6	4.6	2.2	4.6	3.8	5.5
Math. & Sci. Tchrs.....	16	2.8	3.2	4.1	8.6	4.1	8.9
Eng. & Soc. St. Tchrs.....	35	3.7	6.8	2.9	7.0	3.5	5.6
Art & Music Tchrs.....	40	3.5	4.2	2.6	5.1	3.4	4.8
Other Sec. Tchrs.....	27	2.6	2.2	2.3	3.6	2.8	2.5
Nursery & Kdg. Tchrs.....	16	4.1	5.9	2.1	.8	4.1	5.8
Spec. Ed. Elem. Tchrs.....	26	3.4	6.4	2.6	4.9	3.4	7.2
Gen. Elem. Tchrs.....	96	4.1	5.0	3.2	7.3	3.6	4.4
Non-Stand. Wom. Occ.....	78	2.9	3.6	3.1	4.3	2.9	3.4
Anal. of Var. (F,p)		2.3 (01)		1.6 (NS)		1.3 (NS)	
MEN:							
Engineers.....	60	3.9	3.8	4.4	6.1	3.4	4.2
Phys. Ed. Tchrs.....	11	3.9	5.4	3.6	8.4	4.1	5.2
Art & Music Tchrs.....	9	2.7	2.7	2.9	4.8	3.3	3.6
Other Sec. Tchrs.....	19	3.1	4.3	2.9	6.5	4.8	8.7
Medicine, Sci. Res.....	22	3.2	4.0	4.4	10.4	3.3	5.9
Law.....	24	3.6	5.4	6.3	4.9	2.3	3.1
Acct. & C.P.A.....	12	4.2	6.3	4.2	3.5	4.4	5.2
Sales.....	16	3.6	5.9	4.6	9.9	3.4	6.4
Misc. Bus. & Advt.....	17	3.5	5.5	3.0	3.8	2.6	2.8
Ind. Pers. Prod. Man.....	17	2.8	3.0	3.2	5.1	2.9	5.5
NEC.....	19	3.0	3.7	3.6	7.9	3.7	5.6
Anal. of Var. (F,p)		1.0 (NS)		2.8 (05)		1.8 (NS)	

Table 44. Comparison of the occupational groups (means and variances) with respect to their perceptions of the need-satisfaction potential of their occupational choices for the needs of economic status, security, and social status.

	N	Econ Stat		Secur		Soc Stat	
		Mn	Var	Mn	Var	Mn	Var
Women:							
Nursing	48	1.7	1.9	8.1	7.0	5.8	5.6
Math. & Sci. Tchrs	16	1.8	2.7	8.8	5.4	6.3	3.6
Eng. & S. Stud. Tchrs	35	2.5	6.1	9.7	3.1	7.0	9.9
Art & Music Tchrs	40	2.3	4.8	7.9	9.4	6.6	8.3
Other Sec. Tchrs	27	2.2	3.3	8.1	5.1	6.7	5.8
Nursery & Kind. Tchrs	16	1.8	.6	8.8	7.8	7.1	4.2
Spec. Ed. Elem. Tchrs	26	2.0	1.9	6.3	8.6	6.0	4.6
Gen. Elem. Tchrs	96	2.2	3.6	9.0	5.4	6.4	7.2
Non-Stand. Wom. Occ.	78	3.5	9.4	4.9	10.2	7.0	8.6
Anal. of Var. (F,p)		4.0 (001)		15.0 (001)		3.9 (001)	
Men:							
Engineers	60	7.2	6.3	6.8	6.5	7.2	6.0
Phys. Ed. Tchrs	11	3.6	12.2	8.1	5.7	6.9	5.4
Art & Music Tchrs	9	2.0	3.3	6.8	9.5	5.4	8.7
Other Sec. Tchrs	19	2.2	2.5	8.4	7.2	6.7	7.7
Medicine, Sci. Res.	22	6.3	10.7	5.4	7.4	7.9	8.4
Law	24	8.4	5.0	3.8	5.5	9.4	2.7
Acct. & C.P.A.	12	7.2	5.6	7.5	5.1	8.8	2.4
Sales	16	8.2	4.5	5.5	9.5	9.4	2.0
Misc. Bus. & Advt.	17	7.1	7.1	4.5	5.8	7.9	5.3
Ind. Pers. Prod. Man	17	6.1	6.2	5.4	9.3	7.9	7.5
NEC	19	3.2	7.7	7.0	6.3	7.2	10.1
Anal. of Var. (F,p)		11.8 (001)		5.3 (001)		3.9 (001)	

When all prospective secondary school teachers (men) were compared with all other men, they differed in the following respects, with the differences reliable at the level of confidence indicated in parentheses:

Lower potential satisfaction (or more frustration) of achievement needs (.01), dominance needs (.05), change (.001), aggression (.05), social status (.01), and (especially) economic gain (.001).

Higher potential satisfaction (or less frustration) of affiliation needs (.001), intraception (.001), abasement (.05), nurturance (.001), security (.001).

When all secondary teachers (women) were compared with all women other than prospective elementary or secondary teachers, they differed in the following respects, with the differences reliable at the level of confidence indicated in parentheses:

Lower potential satisfaction (or greater frustration) of endurance needs (.05), aggression (.05), economic gain (.05).

Higher potential satisfaction (or less frustration) of dominance needs (.05), security (.001).

When all prospective elementary teachers (women) were compared with all women in the sample other than prospective elementary or secondary school teachers, they differed in the following respects:

Lower potential satisfaction (or more frustration) of achievement needs (.01), change (.01), economic gain (.01)

Higher potential satisfaction (or less frustration) of affiliation needs (.001), intraception (.05), succurance (.01), nurturance (.001), security (.001).

When all prospective secondary teachers (women) were compared with all prospective elementary teachers, the following differences appeared:

Elementary teachers perceived higher potential for satisfaction of nurturance needs (.01), and less potential for frustration of succurance needs (.05).

The profession of public school teaching is perceived, then, within the framework of the methodology of this study, as offering very low potential for substantial economic gain, somewhat less potential than other professions for satisfaction of achievement needs, but offering high potential for the satisfaction of nurturance needs and other needs (e.g., affiliation, intraception) satisfied in relating to and helping people, and high stability and security of employment. The attention of the reader is invited to other comparisons possible among the data presented in the detailed tables.

Perceptions of Prospective versus Experienced Teachers

Are the perceptions of need satisfaction potential of public school teaching by the people planning to enter this occupation similar to the perceptions of people who are already working in that same occupation and hence have had better opportunity to judge?

The left hand portion of Table 45 compares the perceptions of men students who are planning to enter the field of secondary education with those of men who are working in this field. Significant differences occurred in the needs for achievement, order, and nurturance with the students perceiving the occupation as offering more potential for satisfaction of these needs than did the men working in the field. It is interesting to speculate as to the reasons for the observed difference in the perception for achievement need satisfaction. Have the men who are working as secondary teachers really tested this facet of their jobs and found that secondary education actually offers less potential for achievement than they originally thought? Or, have the men who had high perceptions of the potential for the satisfaction of this need dropped out of teaching either by entering some administrative post in education, or by leaving the field entirely? There is no direct evidence on these speculations, but the fact remains that men who are actually working in the field of secondary education feel that their jobs offer less potential for the satisfaction of achievement needs than do men students who are planning to enter teaching.

The center columns of the table present the data comparing the perceptions of women students in secondary education and experienced women teachers. Women students assigned higher ratings to achievement, autonomy, dominance, change and intrasection while the working teachers rated deference higher. It would appear that student teachers planning to teach in the secondary schools will find less opportunity for achievement, independence, dominance, and variety than they had originally expected. One can only speculate on whether or not these factors could account for a portion of the drop out rate of teachers who either leave teaching after a short period or do not enter at all. It must be observed that the variance for the working teachers is sufficiently large to indicate that there are wide differences in their perceptions of the potential of their job to satisfy need for achievement, dominance, and change. It may be, of course, that differences in the climate of various schools exists and that this factor could account for large variance, even though the subjects were instructed to respond in terms of the field in general and not to their specific jobs.

The right hand portion of Table 45 presents the data comparing women students in elementary education and experienced women elementary teachers. Here we find the students perceiving more potential for the satisfaction of achievement, autonomy, dominance, and nurturance needs with experienced teachers judging the occupation to offer higher potential for the satisfaction of the need for deference.

Table 45. Comparison of prospective teachers with experienced teachers with respect to their perception of the need satisfaction potential of public school teaching.

Need	Men Secondary Teachers				Women Secondary Teachers				Women Elementary Teachers					
	Students Mn	Exp. Tchrs. Mn	Var	Sig. Diff.	Students Mn	Exp. Tchrs. Mn	Var	Sig. Diff.	Students Mn	Exp. Tchrs. Mn	Var	Sig. Diff.		
Ach	8.1	7.7	6.5	11.7	01	7.0	9.8	6.0	11.1	6.7	9.9	5.2	12.2	001
Def	5.5	12.8	5.9	9.1	NS	5.5	9.1	6.6	10.2	5.0	8.4	7.1	10.2	001
Ord	8.0	5.5	6.9	11.5	05	6.9	9.4	6.8	9.8	6.5	10.3	6.8	11.3	NS
Exh	4.6	10.7	5.1	16.4	NS	5.6	10.6	5.5	11.2	5.0	11.7	4.8	10.8	NS
Aut	3.5	6.8	3.1	7.3	NS	3.6	7.3	2.2	3.8	3.6	6.6	2.8	5.7	05
Aff	8.8	3.7	8.3	5.1	NS	8.5	6.2	8.1	6.7	8.9	3.8	8.5	4.8	NS
Intra	9.5	4.4	8.9	5.0	NS	9.8	2.9	9.2	5.0	10.0	2.2	9.6	9.3	NS
Suc	3.2	4.4	3.5	5.5	NS	3.3	4.6	3.1	5.5	4.0	5.4	3.7	5.1	NS
Dom	6.7	8.0	6.7	10.4	NS	7.5	7.9	6.0	11.1	6.9	9.1	6.0	11.2	05
Aba	4.3	6.9	3.4	6.7	NS	3.4	5.2	3.4	7.0	3.6	5.1	3.2	8.4	NS
Nur	9.4	2.6	8.2	5.0	001	9.6	3.2	9.4	3.4	10.1	1.7	9.3	4.1	001
Cha	6.0	10.1	5.5	12.1	NS	7.1	11.6	5.7	13.2	6.9	10.7	6.4	12.0	NS
End	8.9	5.1	8.7	6.0	NS	8.2	5.9	8.3	8.8	8.3	8.0	8.2	6.9	NS
Agg	3.1	6.8	3.4	8.4	NS	2.8	6.1	3.0	8.5	2.9	6.3	2.9	8.3	NS
Sec	8.0	7.7	8.6	8.5	NS	8.6	6.6	9.1	2.9	8.4	7.4	8.6	7.2	NS
Soc	6.5	7.6	6.4	7.4	NS	6.7	7.6	6.2	8.3	6.4	6.4	6.3	9.2	NS
Intell	8.3	5.4	8.5	7.7	NS	8.6	6.8	8.4	6.8	8.5	7.2	8.0	8.7	NS
Econ	2.6	5.9	1.9	3.1	NS	2.3	4.6	2.1	2.7	2.1	2.9	2.4	5.0	NS
N	39	122			118	102				138		99		

It would appear that, in the field of education at least, consistent differences in perceptions of the potential of the occupation to satisfy certain needs do occur. In the case of both men and women the students planning to be teachers felt that their chosen work offered more potential for achievement and for the giving of help than did the people who actually work in the field. What this means for the recruitment of teachers is difficult to tell. However, it does seem to indicate that some of the prospective teachers are going to be disappointed in these aspects of their jobs. In the case of women teachers in both elementary and secondary schools, the working teachers felt that the occupation offered greater opportunity to defer to others, to accept the leadership of others, and to conform than did the student teachers. Again we cannot tell whether this is the result of a process of selection whereby the teachers who do not see things this way have tended to get out of education, or whether actual job experience in teaching has taught them that this is reality. In either case, there are implications for the field of public education that cannot be ignored.

I SUMMARY

The present study grew out of the assumption that efforts to attract people into occupations, such as teaching, where critical personnel shortages exist, will be successful to the degree that those efforts reflect an awareness of the motivational and personality factors that predispose people to select this or other occupations.

While the investigation was largely a descriptive study designed to discover ways in which prospective teachers differed from prospective members of certain other occupations, a general hypothesis giving direction to the study was that an individual will tend to select that occupation which is perceived as offering potential for the satisfaction of his basic needs and as compatible with his already established adjustive patterns, i.e. his personality. Since occupations presumably differ in their need satisfaction potential, it was hypothesized that college students selecting different occupations would differ in their need patterns and in their perceptions of the occupation of their choice. At the outset of the study, a number of hypotheses were entertained, based on preliminary estimates by the investigators as to the kinds of needs that might be satisfied in different occupations and the personality characteristics compatible with certain types of work. The various hypotheses will be described briefly in appropriate places in this summary; they were of four types: (1) hypotheses related to degree of general career motivation, (2) hypotheses related to needs, (3) hypotheses related to the perceived need satisfaction potential of various occupations, and (4) hypotheses related to personality differences.

Subjects and Procedure

The subjects of the study were junior and senior volunteers from The School of Education, The College of Liberal Arts, the College of Engineering, The College of Business Administration, and The School of Nursing of Syracuse University. The initial plan was to administer to the subjects a variety of tests designed to measure motivations, interests, and personality, to obtain information about occupational choice and personal backgrounds, and to interview regarding the course of development of occupational choice. The following tests were selected for administration in the order given in three two-hour testing periods spaced one week apart: Session I, The Strong Vocational Interest Blank, The Edwards Personal Preference Schedule, a Rigidity of Attitudes toward Habits scale, a brief manifest anxiety scale; Session II, The California F-Scale, The Guilford-Zimmerman Temperament Scale, a personal data inventory, Stern's Inventory of Beliefs; Session III, the McClelland achievement need scale, an instrument designed to measure the perceived need satisfaction potential of an occupation (labelled "Personality Types and Occupations"), and a family relations questionnaire. It became apparent after data collecting was well underway that the original test battery was too extensive, and

Accordingly those devices underlined in the foregoing list were selected to constitute the "basic battery" of tests most directly related to the hypotheses of the study. Additional subjects were then obtained. Interviews were conducted independently of the testing. Not all students tested were interviewed and some who were interviewed had not been tested.

A total of 1043 subjects participated in at least some phase of the study, but for various reasons individuals were eliminated so that the final group was all white, all of North American (or European) background, and between 18 and 22 years of age inclusive in the case of women and 18 and 26 in the case of men. The subjects involved in the analyses of test data numbered some 450 women and some 290 men, the figures varying somewhat from one analysis to another because of occasional missing scores or differing criteria for exclusion or inclusion of subjects. Some 300 women and some 220 men were subjected to an interview of about one hour in length. Occupational choice groups were set up consisting of individuals who indicated that they knew what occupation they wished to enter after graduation and were "quite sure" or "reasonably certain" of their choice. The occupational groupings and the approximate numbers of subjects in each group follow:

Women: Nursing, 48; mathematics and science teachers, 17; English and social studies teachers, 36; art and music teachers, 41; other secondary teachers, 29; nursery school and kindergarten teachers, 16; elementary "special education" teachers, 27; general elementary teachers, 103; women selecting "non-standard" women's occupations, 79; "no choice", 24.

Men: Engineering, 61; physical education teachers, 12; art and music teachers, 10; other secondary teachers, 19; medicine and scientific research, 23; law, 24; accounting and CPA, 12; sales, 17; miscellaneous business and advertising, 17; industrial personnel and production management, 18; not elsewhere classified, 19; "no choice," 44.

The numbers indicated above were involved in all "by occupation" analyses of the "basic test battery." (Because of occasional omissions of data, or failure to complete a test, the N's varied slightly from these figures in certain comparisons.) In the case of the tests not in the basic battery and the interview findings, analyses were "by college," and involved the following groups and (approximate) numbers:

Women: Nursing, 49; secondary education, 135; elementary education, 166; liberal arts, 88.

Men: Secondary education, 61; engineering, 76; business administration, 83; liberal arts, 131.

Since there was marked attrition from the first to the third testing sessions, these figures represent maximum N's in comparisons "by college". For example, in the case of the McClelland achievement need measure in Session III (where the N's were minimal), the respective N's for the above groups were as follows: Women: 0 (nurses were tested with the basic battery only), 57, 102, 46.

Men: 17, 16, 40, 4. Comparisons involving the interview were based on the following approximate N's for the respective college groups. Women: 48, 83, 112, 56. Men: 41, 69, 98, 50.

Comparisons of the occupation and college groups with respect to such background and personal characteristics as age, college aptitude (ACE), religion, and occupational level of father indicated the existence of reliable differences. However, correlations between age and academic aptitude on one hand and the various motivational and personality variables on the other were, in the main, not significantly different from zero and when reliable were low. In addition, it may be argued that the influence of background variables upon vocational choice is mediated primarily through motivations, personality, and perceptions, and thus that quite aside from background differences, it is not unreasonable to focus directly upon differences in needs and personality.

Saliency of Career and Process of Choice

Career saliency is a concept of some significance in the consideration of vocational choice and career development. Some people seem not particularly career motivated nor do they view careers as a basic source of life satisfaction. It was reasoned, in connection with the present study, that people for whom career has little saliency will eventually, almost by default, become oriented toward those occupations which have little in the way of required preparation for entrance and hence are available to such people when a decision must be made. Teaching may be viewed as being one such occupation, at least for those who are already committed to a college education though not to a prospective occupation. Accordingly, it was predicted that for women selecting teaching, career will have less saliency (though more so for prospective secondary teachers than elementary) than would be true of women oriented toward non-standard women's occupations. The same would hold for prospective men teachers compared to those choosing other professions. It was anticipated that variations in saliency of career would be especially evident in the chronology of vocational choice. Those individuals for whom career has little saliency will tend to make their choice later and will tend to anticipate achieving their eventual goals at an earlier age than career oriented individuals. Whether such predictions would be confirmed in the case of women was deemed dubious at the outset, because career does not typically become salient for women till an age when probability of marriage is reduced. In addition, strong cultural pressures tend to funnel women into conventional women's occupations, a fact that might alter markedly the expected chronological pattern of choice.

The "process" of choice likely involves compromise, as one's expectations (perceptions) of an occupation with respect to its potential "fit" to one's self-concept and need structure are modified through such processes as role playing and other varied forms of reality testing. Goals may be changed because of obstacles to their achievement. Since public school teaching ranks

low in status among professions, it was hypothesized that those oriented toward teaching, as college juniors and seniors, would have more often been forced to compromise, i.e. would have selected this field because, for some reason or other, they could not do what they "really" wanted to do.

In general the data tended to support these hypotheses. Men education students began their current choice later than engineers or liberal arts men (mean ages of 18.2, 16.2, 17.0 respectively) but at the same age as business administration students (who as a group are choosing indeterminate occupations), and they expect to achieve their eventual goals at an earlier age, 37.9 years versus 41.4, 41.4, and 44.1 for the engineers, business administration and liberal arts students respectively. The facts for women were not so clear, though the expected differences appeared in the contrasts between prospective elementary and secondary teachers. Women secondary education and elementary education students had mean ages of current choice of 14.7 and 14.1 respectively and expected age of reaching eventual goal of 29.8 and 27.3, the last difference only being reliable and at the .05 level of confidence. A variety of data implied that for women in secondary education the choice was often a compromise (and not necessarily a desirable one). Compared to other women's groups, they reliably more frequently reported that their job choice was secondary but a place where skills they possessed were usable, that they would select another occupation if they could do anything they wanted, and that they had doubts about liking the way of life involved in their job choice. Prospective men teachers tended to stand out in none of these ways. But they did reliably more frequently than other groups of men mention first job only (no reference to advancement) when asked about their future plans, more frequently defined their goal essentially as "doing a good job," less frequently mentioned good or excellent opportunities in the field, but more often thought their chances of achieving their goals were excellent. A greater proportion of them also thought it was "never too late to change" their choice of vocation. Secondary education women more frequently than other groups seemed forced to compromise their goals and turn to education; secondary men showed little evidence of this, rather occupation seemed really not to matter much.

Thus it tentatively may be concluded that career has less saliency for prospective men teachers or women elementary teachers than for other groups. Women secondary teachers seem not so much lacking in career motivation compared to other women, as encountering more circumstances that frustrate other plans, resulting in the selection of teaching as a secondary choice.

While the interview (which provided the foregoing information) yielded other data relative to vocational choice in general, the data in the main threw no special light on why people may have chosen one occupation over another, except in the case of motivations to be commented upon later. The women's groups and the men's groups were similar (i.e., comparisons within the sex groups taken separately) in work experience, in reasons for giving up choice just preceding current choice, in reasons for not going into father's occupation. Such data mainly provided insights into the process of reality testing in vocational choice generally.

One particular finding with respect to nurses deserves mention. They began their current choice at a mean age of 10.2 years a full 4 to 6 years earlier than the other women's group. Other evidence indicated that they had been reading books about nursing at about this age and were greatly influenced by the glamor of the role of a nurse. Perhaps similar "glamor" literature should be made available about teachers. It may, of course, be that while such literature may be influential in the choice of nursing, it might fail in the case of teaching because of the many direct contacts (and hence opportunities for reality-testing and possible disillusionment) children have with teachers.

Needs and Occupational Choice

A priori considerations regarding the types of satisfactions and frustrations that likely characterize public school teaching and other occupations led to a number of relatively specific hypotheses relating to differences in selected needs (nurturance, achievement autonomy) among the groups studied. Since teaching is a "helping" profession, it was anticipated that people selecting teaching, especially elementary teaching, would have relatively high nurturance needs. It was also expected that prospective nurses would be high in this respect, but that women going into non-standard women's occupations and men going into occupations such as engineering and business would have relatively low nurturance needs. It was anticipated that the reverse would be true of achievement needs, that individuals with high achievement needs would eschew such occupations as teaching which would seem to offer little opportunity along this line but would tend to enter law, engineering, and business, if men, or, if women, the non-standard women's occupations, but if they selected teaching would more likely select secondary teaching. It was anticipated in the instance of autonomy needs that nurses and teachers (especially elementary teachers) would have relatively weak needs, whereas women selecting non-standard women's occupations and men selecting law, engineering, and business would have relatively strong autonomy needs.

The data clearly supported the view that people choosing different occupations are differentiated in terms of needs. Analysis of variance results indicated that the null hypothesis could be rejected in the case of the women's occupational choice groups at the .01 level of confidence in the case of needs for achievement, autonomy, affiliation, nurturance, and change, and at the .05 level of confidence in the case of dominance and abasement, all needs as measured by the Edwards Personal Preference Schedule. According to the analysis of variance results, the women's occupational groups could be regarded as representatives of the same population (i.e., the null hypothesis could not confidently be rejected.) in the instance of needs for deference, order, exhibition, intraception, succorance, endurance, heterosexuality, and aggression. For men, the F's yielded by analysis of variance were significant at the .01 level in the case of needs for achievement, dominance, and endurance, and at the .05 level in the case of intraception, change, and heterosexuality.

Compared to all other men studied, prospective men teachers had reliably higher nurturance needs (reliable at .01 level of confidence), reliably lower achievement needs (.05 level), and reliably lower autonomy needs (.05 level). These differences were predicted, and by and large reflect positive characteristics of teachers. Teachers select teaching, it may be argued, because of the intrinsic satisfaction they get from helping others. They are not eager to "get ahead" in the conventional competitive sense, nor are they people with outstanding autonomy needs. But three other reliable differences appeared which are less complimentary and which seem to reflect unfavorable aspects of the popular teacher stereotype. These men had stronger needs to defer (.05 level) and to be self-abasing (.01 level), and less need for change (.01 level). Prospective women secondary teachers compared to all other (non-teacher) women had reliably lower achievement needs (.05 level), lower need for change (.01 level), and stronger nurturance needs (.05 level). Prospective elementary women teachers compared to all other (non-teacher) women were lower in achievement needs (.01 level) and in change (.05 level), and higher in need for order (.01 level) and affiliation (.05 level) and had stronger nurturance needs (.01 level). The needs for deference and self-abasement did not differentiate prospective women teachers from other women, as was true in the case of men teachers compared to other men.

The specific hypotheses regarding differences in strength of achievement and nurturance needs were thus clearly supported. In the instance of need for autonomy, a need which did not differentiate the men's occupational groups (though teachers were lower) and while differentiating the women's groups, did not differentiate teachers from other women, the findings were less clear cut. Prospective nurses were clearly less autonomous as predicted.

It was hoped to compare groups selecting different areas of teaching, but, except for elementary vs. secondary teaching, N's were too small to yield stable results. Among women, prospective secondary women had reliably stronger achievement and dominance needs (both at the .01 level of confidence) than did prospective elementary teachers, but the groups could not be viewed as other than representatives of the same population with respect to nurturance and autonomy needs as was hypothesized. However, when subgroups of secondary teachers were compared with subgroups of elementary teachers with respect to nurturance needs, reliable differences in the direction of lower nurturance needs on the part of the secondary groups appeared. Although mathematics and science teachers as a group had lower nurturance needs than any other group of secondary teachers, the difference was reliable (and then at only the .05 level of confidence) in comparison with the "other secondary" group. The subgroups of secondary women teachers did not differ reliably with respect either to achievement needs or autonomy needs, the needs involved in the more specific hypotheses of the study.

The interview data also supported the general hypotheses with respect to achievement and nurturance needs, indicating greater nurturance needs on the part of prospective teachers of both sexes (and elementary as compared to secondary teachers) and lower achievement needs, though, as predicted, women secondary teachers seemed to evidence more interest in achievement than did elementary teachers.

The Need Satisfaction Potential of Occupations

The concept of "career saliency," discussed earlier, referred to the perceived need satisfaction potential of career versus other areas of life, i.e. to the general importance of career to the individual. The concept of "need satisfaction potential" of an occupation is more specific in that it involves particular needs and particular occupations. The basic point of view underlying this study is that the choice of a career is a long-term developmental process in which eventually an occupation is selected which is perceived as offering the potentiality for satisfying the needs of the individual, though he may not consciously be aware that he is "selecting" on this basis. The specific hypotheses involved in this phase of the study paralleled those specified earlier in the case of needs, and related to the perceived potential of the subjects' occupation of choice for satisfying needs for achievement, nurturance, and autonomy. In this instance, there was the additional purpose of determining the degree of congruence between the expectations of prospective teachers and the realities of the situation as viewed by experienced teachers, 122 men and 115 women secondary teachers, and 99 women elementary teachers.

The relevant information was obtained by means of an instrument devised for this study. Brief "personality" descriptions which were actually slightly modified versions of the definitions of the various needs presented in the manual accompanying the Edwards schedule (plus four additional descriptions relating to need for job security and stability, need for intellectual stimulation, need for substantial economic gain, and need for social status) were presented to the subjects together with instructions to rate on an 11-point scale (-5 to +5) the degree to which the occupation of the student's choice would likely prove satisfying or frustrating to the kind of person described. The data to be described reflect, for example, how prospective engineers perceived the need satisfaction potential of engineering, as compared to prospective teachers' perceptions of the need satisfaction potential of teaching.

Analysis of variance indicated that the null hypothesis could be rejected in the instance of the women's occupational groups with respect to the following perceptions of the potential satisfaction of the following needs: At the .01 level of confidence or better--deference, order, exhibition, affiliation, intraception, succorance, nurturance, change, security, social status, substantial economic gain: at between the .05 and .01 level--autonomy and endurance. Among men the following perceptions of need satisfaction potential

differed at the .01 level of confidence or better: achievement, exhibition, affiliation, intrasection, dominance, nurturance, change, endurance, security, social status, intellectual, substantial economic gain. In short, there are numerous need dimensions along which the satisfying potential of occupations is seen to differ by people selecting them.

When all prospective secondary school teachers (men) were compared with all other men, they differed in the following respects, with the differences reliable at the level of confidence indicated:

Lower potential satisfaction (or more frustration) of achievement needs (.01), dominance needs (.05), change (.001), aggression (.05), social status (.01), and (especially) economic gain (.001).

Higher potential satisfaction (or less frustration) of affiliation needs (.001), intrasection (.001), abasement (.05), nurturance (.001), security (.001).

When all secondary teachers (women) were compared with all women other than prospective elementary or secondary teachers, they differed in the following respects:

Lower potential satisfaction (or greater frustration) of endurance needs (.05), aggression (.05), economic gain (.05).

Higher potential satisfaction (or less frustration) of dominance needs (.05), security (.001).

When all prospective elementary teachers (women) were compared with all women in the sample other than prospective elementary or secondary school teachers, they differed in the following respects:

Lower potential satisfaction (or more frustration) of achievement needs (.01), change (.01), economic gain (.01).

Higher potential satisfaction (or less frustration) of affiliation needs (.001), intrasection (.05), succurance (.01), nurturance (.001), security (.001).

When all prospective secondary teachers (women) were compared with all prospective elementary teachers, the following differences appeared:

Elementary teachers perceived higher potential for satisfaction of nurturance needs (.01), and less potential for frustration of succurance needs (.05).

(The profession of public school teaching is perceived, then, within the framework of the methodology of this study, as offering very low potential for substantial economic gain, somewhat less potential than other professions for satisfaction of achievement needs, but offering high potential for the satisfaction of nurturance needs and other needs (e.g., affiliation, intrasection) satisfied in relating to and helping people, and high stability and security of employment.)

How do the perceptions of prospective teachers compare to the perceptions of experienced teachers, the latter perceptions presumably representing more nearly the reality of the situation? Compared to prospective teachers, experienced men secondary teachers perceived this field as offering reliably less opportunity for gratification of achievement needs (at the .01 level), of nurturance needs (.001 level), and of need for order (.05). Compared to prospective teachers, experienced women secondary teachers perceived the field as offering less opportunity for gratification of needs relating to achievement (.05 level), intrasection (.05 level), dominance (.001 level), change (.01 level), and as being even more frustrating to the autonomous individual (.001 level). (Both prospective and experienced teachers perceived teaching as being frustrating to the autonomous individual.) But experienced teachers thought the deferent person would find reliably greater opportunities to be deferent (.01 level). Compared to prospective teachers, experienced women elementary teachers perceived the field as offering reliably less opportunity for achievement (.001 level), for dominance (.05 level), and for nurturance (.001 level). But like secondary teachers they thought the autonomous person would be even more frustrated (.05 level), and that the deferent person would find more opportunities to be deferent (.001 level). Most of these comparisons suggest areas of potential frustration for teachers entering the profession.

Personality Differences among the Occupational Choice Groups

It had been hypothesized that people would tend to select occupations that not only offered potential for the satisfaction of needs (as described above), but also that were compatible with already existing habits of satisfying needs, i.e. with their established adjustive predispositions or personality. Although a variety of personality data were collected, the main hypothesis related to the trait of rigidity or intolerance of ambiguity, a characteristic that has received much theoretical and research attention in recent years. It was hypothesized that individuals with rigid personalities would tend to select occupations which are highly structured, where decisions are clear-cut, answers "right" or "wrong", data and operations to be dealt with tangible. It was predicted that prospective engineers would be rigid, as would nurses, and that elementary teachers and those selecting social studies and English as majors would be less rigid than those selecting mathematics and science. These predictions grew out of a priori judgments regarding the degree to which these various fields were highly structured or involved ambiguities.

Although three measures of rigidity (The F-scale, a measure of "Attitudes toward Rigidity of Habits", the stereopathic scale of Stern's Inventory of Beliefs), analysis of variance indicated that the various occupational choice groups (men and women taken separately) could not confidently be viewed as other than representatives of the same population, i.e., the rigidity scales did not differentiate. It may be that our original hypothesis is not sound or that our particular measures do not tap the type of rigidity involved.

Several of the other measures of personality differentiated the occupational choice or college groups. It had been anticipated, because of their selection of a "secure" occupation, that prospective teachers might be insecure individuals and that they might evidence more anxiety symptoms on a scale of manifest anxiety. Although the brief anxiety scale differentiated reliably among the choice groups, contrary to expectations prospective teachers were low to average in mean score. For both sex groups, the "no choice" groups had highest scores. Other personality measures were analyzed only for "college" subgroups. Analysis of variance results were significant at the .01 level of confidence for both sexes in the case of masculinity-femininity, elementary education women and education men being most feminine for their respective sex groups. Liberal arts women were least feminine and engineers most masculine for their respective sexes.

Analysis of variance indicated the null hypothesis could be rejected for either or both of the men's and women's college groupings on a number of the subscales of the Guilford-Zimmerman Temperament Scale. In the instance of the three scales that differentiated men (general activity, ascendancy, sociability) the business administration students had the highest mean scores and the engineering students the lowest. These two groups probably represent contrast with respect to people-vs thing-orientation, and these subscales seem to relate to interactions with people, in the main. Of these three scales only the sociability scale differentiated the women's college groups; the elementary education group scored highest, the liberal arts group lowest. The subscales of objectivity, friendliness, and personal relations differentiated the women's groups but not the men's groups. On all of these scales the elementary education group scored highest, and the liberal arts group lowest. The meaning of these differences are left as a subject of speculation for the reader. It may be ventured, suggested by these findings, that the elementary education group, more than any other group, is made up of well-adjusted, feminine-type women, interested in marriage and people, and little concerned with a career.

Concluding Comment

The study has served to define, at least on a tentative basis and with appropriate reservations necessitated by the measures and sample employed, some significant differences between prospective teachers and those selecting other occupations along the dimensions of needs and personality and the potential of the occupations of choice to satisfy needs. What implications do these findings have for the profession of public school teaching and for further research?

Perhaps it is inevitable that an occupation having such extensive needs for highly educated staff members will continue to attract those who are "educated" but not basically interested in a career or who cannot market their skills elsewhere. A basic question is how to change the "image" of public school teaching, i.e., its perceived potential for satisfying the needs of people who are psychologically

vigorous individuals who are interested in a career and in personal achievement as well as in such intrinsic satisfactions as derived from helping others.) While an appropriate emphasis upon what is "right" about education is desirable and perhaps should receive even more attention than now, just as important is to attempt to correct what may be inferred from the present data to be "wrong". [It may be regarded as unfortunate that the only way a person can "advance" in public education is to leave teaching. Can ways be devised to permit a person to obtain a sense of tangible achievement and still remain in or close to the teaching role? While salary considerations are not irrelevant, perhaps the establishment of a series of academic ranks (as in universities) which provide public evidence of career progress would serve a useful purpose. Among the more effective ways of changing the perception of an occupation would seem to be that of changing the realities. Appropriate attention to means of devising a sequence of ranks or roles which would be perceived as representing career development within teaching and public education would seem necessary if others who are now turning to other types of work are to be attracted to it.]

This last point raises a question for further research. While a program of recruitment probably can be improved by attention to what attracts people now being attracted, an effective program obviously will involve reasons why people turn to other fields for careers. It is from this latter group that new recruits will come. One important issue on which the present research throws no direct light relates to the way a career in teaching is perceived by those not selecting it. Prospective teachers, who tend to be low in achievement needs, perceive teaching as offering moderate potential for the satisfaction of achievement needs, though less so than other occupations were perceived by those choosing them. Do those going into other fields view it in the same way? Or is it to them a field perceived as frustrating to the achievement or career oriented person? While the present study focuses upon contrasts between how teaching is perceived by those selecting it and how other occupations are perceived by those selecting them, further research may well focus upon how teachers and teaching are perceived by those representing various other groups in the population.

REFERENCES

- Adorno, T. W.; Frenkel-Brunswik, Else; Levinson, D. J.; and Sanford, R. N. The Authoritarian Personality. N. Y., Harper, 1950.
- Bendig, A. W. The development of a short form of the Manifest Anxiety Scale. Journal of Consulting Psychology, 1956, 20, 384.
- Christy, R. and Jahoda, M. (eds.) Studies in the Scope and Method of "The Authoritarian Personality." Glencoe (Illinois), The Free Press, 1954.
- Darley, J. G., and Hagenah, Theda. Vocational Interest Measurement: Theory and Practice. Minneapolis, University of Minnesota Press, 1955.
- Davidson, P. E., and Anderson, H. D. Occupational Mobility in an American Community. Stanford (Calif.), Stanford University Press, 1937.
- Edwards, A. L. Edwards Personal Preference Schedule (Manual). N. Y., Psychological Corp., 1954.
- Frenkel-Brunswik, Else. Intolerance of ambiguity as an emotional and perceptual personality variable. Journal of Personality, 1949, 18, 108-143.
- Lindquist, E. F. Design and Analysis of Experiments in Psychology and Education. Boston, Houghton Mifflin, 1953.
- McClelland, D. C. The Achievement Motive. N. Y., Appleton-Century-Crofts, 1953.
- Meresko, R.; Rubin, M.; and Shontz, F. Rigidity of attitudes regarding personal habits and its ideological correlates. Journal of Abnormal and Social Psychology, 1954, 49, 89-93.
- Norton, J. L. Patterns of vocational interest development and actual job choice. Journal of Genetic Psychology, 1953, 82, 235-262.
- Roe, Anne. The Psychology of Occupations. N. Y., Wiley, 1956.
- Stern, G. G.; Stein, M. I., and Bloom, B. S. Methods in Personality Assessment. Glencoe (Illinois), The Free Press, 1956.
- Strong, E. K., Jr. Vocational Interests of Men and Women. Stanford (Calif.), Stanford University Press, 1943.

Strong, E. K., Jr. Vocational Interests 18 Years after College.
Minneapolis, University of Minnesota Press, 1955.

Super, D. E. A theory of vocational development. American Psychologist, 1953, 8, 185-190.

Super, D. E. The Psychology of Careers, N. Y., Harper, 1957.

Warner, W. L.; Meeker, M.; and Eells, K. Social Class in America: A Manual of Procedure for the Measurement of Social Status.
Chicago, Science Research Associates, 1949.

A P P E N D I X

The instruments used in this study were mainly published instruments, or schedules for collecting of personal data and interview material, nature of which is obvious or is apparent from the text which quotes specific questions. The one device, designed to measure perceptions of the need satisfaction potential of occupations ("Personality 'Types' and Occupations") is reproduced here.

PERSONALITY "TYPES" AND OCCUPATIONS

Your name _____

Occupation you plan to enter (If a special branch, so indicate) _____

PLEASE READ CAREFULLY: On the following pages are presented a number of brief "thumb-nail" sketches of various types of people. You are requested to read each description carefully to note the general type of person being described, and then judge the degree to which you think that kind of person would find satisfaction and happiness in the occupation noted above (that is, in the occupation you plan to enter) or will likely be frustrated and unhappy in this occupation. In other words, what potentialities for basic satisfactions does this particular occupation offer the kinds of people described below, or to what degree is this occupation likely to pose serious frustrations for those types of individuals?

RATE EACH "PERSONALITY TYPE" ON THE FOLLOWING SCALE:

"Plus 5" -- means this kind of person will find exceedingly great opportunities for satisfaction in this occupation.

"0" -- means this occupation will offer no special opportunities for satisfaction nor will it especially frustrate this kind of person.

"Minus 5" -- means this occupation or profession will pose exceedingly great and serious frustrations for this type of person.

Use numbers between 0 and +5 and between 0 and -5 to indicate varying degrees of job potential for satisfaction or likelihood of job frustration respectively.

PLEASE OBSERVE THE FOLLOWING CAUTIONS IN MAKING YOUR RATINGS:

1. Think of the profession or occupation in general. Do not think of a particular type of, or a particular organization, institution, or industrial establishment for which you might work.
2. Rate the degree to which you think this particular type of person will himself be satisfied or frustrated in the occupation. Do not consider whether this kind of person would make a desirable member of this profession or would do a good job. (He might, for example, be happy himself but not be a good member of the profession.)
3. Ignore whether or not you personally like or dislike the kind of person described.
4. Be as objective as possible. Try not to let the kind of person you are personally influence your ratings of the "types" described.

THE BASIC QUESTION IS WHETHER, IN YOUR OPINION, EACH OF THE KINDS OF PERSONS DESCRIBED ON THESE PAGES WOULD FIND THE OCCUPATION YOU WROTE AT THE TOP OF THIS PAGE SATISFYING TO HIM OR WOULD FIND THAT OCCUPATION FRUSTRATING, AND TO WHAT DEGREE.

TYPE 1. This person has a high need to achieve. He likes to do his best, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems, to be able to do things better than others, to get ahead, to be a big success.

Will this occupation offer him opportunity for satisfying experiences---or will it pose frustrations? And to what degree? Circle one number to indicate your judgment.

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 2. This person likes to defer to others, to get suggestions from them, to follow instructions and do what is expected, to praise others, to tell others that they have done a good job, to accept the leadership of others, to conform to custom and avoid the unconventional, to let others make decisions.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 3. Here is an orderly person. He likes to have written work neat and organized, to make definite plans before starting on a difficult task, to have things organized, to keep things neat and orderly, to make advanced plans when taking a trip, to organize details of work, to keep letters and files according to some system, to have meals organized and a definite time for eating, to have things arranged so that they run smoothly without change.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 4. This person is something of an exhibitionist. He likes to say witty and clever things, to tell amusing jokes and stories, to talk about personal adventures and experiences, to have others notice and comment upon his appearance, to say things just to see what effect it will have on others, to talk about personal achievements, to be the center of attention, to use words that others do not know the meaning of, to ask questions others cannot answer.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 5. This person likes independence. He likes to be able to come and go as he desires, to say what he thinks, to be independent of others in making decisions, to feel free to do what he wants, to do things that are unconventional, to avoid situations where he is expected to conform, to do things without regard to what others may think, to criticize those in positions of authority.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 6. This person needs close ties to others. He likes to be loyal to friends, to participate in friendly groups, to do things for friends, to form new friendships, to make as many friends as possible, to share things with friends, to do things with friends rather than alone, to form strong attachments.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 7. Here is a person who likes to analyze his own motives and feelings, to observe others, to understand how others feel about problems, to put himself in another's place, to judge people by why they do things rather than by what they do, to analyze the behavior of others, to analyze the motives of others, to predict how others will act.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation				No special			This occupation			
will pose exceedingly				satisfactions			will offer exceedingly			
high frustration				or frustrations			high satisfactions			

TYPE 8. This person likes sympathetic attention. He likes to have others provide help when in trouble, to seek encouragement from others, to have others be kindly, to have others sympathetic and understanding about personal problems, to receive a great deal of affection from others, to have others do favors, to be helped by others when depressed, to have others feel sorry for him when he is sick, to have a fuss made over him when hurt.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation				No special			This occupation			
will pose exceedingly				satisfactions			will offer exceedingly			
high frustration				or frustrations			high satisfactions			

TYPE 9. Here is a dominating type. He likes to argue for his point of view, to be a leader in groups to which he belongs, to be regarded by others as a leader, to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence others to do what he wants, to supervise and direct the actions of others, to tell others how to do their jobs.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation				No special			This occupation			
will pose exceedingly				satisfactions			will offer exceedingly			
high frustration				or frustrations			high satisfactions			

TYPE 10. This type seems to like to feel guilty and to be self-abasing. He likes to feel guilty when he does something wrong, to accept blame when things do not go right, to feel that personal pain and misery suffered does more good than harm, to feel the need for punishment for wrong doing, to feel better when giving in and avoiding a fight than when having one's own way, to feel the need for confession of errors, to feel depressed by inability to handle situations, to feel timid in the presence of superiors.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 11. This is the helpful, sympathetic type. He likes to help friends when they are in trouble, to assist others less fortunate, to treat others with kindness and sympathy, to forgive others, to do favors for others, to be generous with others, to sympathize with others who are hurt or sick, to show a great deal of affection toward others, to have others confide in him about personal problems.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 12. This person enjoys change. He likes to do new and different things, to travel, to meet new people, to experience novelty and change in daily routine, to experiment and try new things, to eat in new and different places, to try new and different jobs or aspects of a job, to participate in new fads and fashions.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration			No special satisfactions or frustrations				This occupation will offer exceedingly high satisfactions			

TYPE 13. This type of person is notable for stick-to-it-iveness and is capable of considerable endurance. He likes to keep at a job until it is finished, to complete any job undertaken, to work hard at a task, to keep at a problem until it is solved, to work at a single job before taking on others, to stay up late working in order to get a job done, to put in long hours of work, to stick at a problem even though it may seem as if no progress is being made, to avoid being interrupted while at work.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustrations				No special satisfactions or frustrations			This occupation will offer exceedingly high satisfactions			

TYPE 14. This person seems to enjoy aggression. He likes to attack contrary points of view, to tell others what he thinks about them, to criticize others, to make fun of others, to tell others off when disagreeing with them, to get revenge for insults, to become angry, to blame others when things go wrong.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustrations				No special satisfactions or frustrations			This occupation will offer exceedingly high satisfactions			

TYPE 15. This person wants security. He wants to be sure of his income. Steadiness and tenure of job are important. He wants a "safe", secure way of life. He hesitates to run risks, to take chances. In making decisions he weighs security and certainty more than potential economic and other gains.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustrations				No special satisfactions or frustrations			This occupation will offer exceedingly high satisfactions			

TYPE 16. This person likes social status, to stand well in the community, to have other people look up to him; he likes to be invited to the right parties; to associate on a personal and social basis with the "best people" in town. He likes to go to the "right places," do the "right things," be somebody.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration				No special satisfactions or frustrations			This occupation will offer exceedingly high satisfactions			

TYPE 17. This person has strong intellectual needs. He has a driving curiosity, a strong spirit of inquiry. He likes to know the why of things, to really understand matters, to find things out for himself. He is genuinely interested in intellectual matters.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration				No special satisfactions or frustrations			This occupation will offer exceedingly high satisfactions			

TYPE 18. This person is economically-minded, he wants money and the things money will buy. He aspires to a big income, a substantial bank account; he wants to achieve economically to the degree that "money is no object." He wants and tends to make decisions primarily on a money basis.

Will such a person find this occupation offering high potential for satisfaction or will he be frustrated?

-5	-4	-3	-2	-1	0	/1	/2	/3	/4	/5
This occupation will pose exceedingly high frustration				No special satisfactions or frustrations			This occupation will offer exceedingly high satisfactions			